INSTITUTE OF EDUCATION SCIENCES

REQUEST FOR APPLICATIONS

Special Education Research Grants
CFDA Number: 84.324A

Milestone	Date	Website
Letter of Intent Due	May 5, 2016	https://iesreview.ed.gov/
Application Package Available	May 5, 2016	http://www.grants.gov/
Application Due	**No later than 4:30:00 p.m. Washington DC time August 4, 2016**	**http://www.grants.gov/**
Applicants Notified	By July 1, 2017	https://iesreview.ed.gov/
Possible Grant Start Dates	July 1-September 1, 2017	

IES 2016 **U.S. Department of Education**

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Special Note for FY 2017: Due to funding limitations, the National Center for Special Education Research (NCSER) has limited resources available for new research grants in FY 2017. To accommodate these limited resources and address a critical need in special education research, **NCSER is restricting the focus of the FY 2017 RFA to research on teachers and other instructional personnel.**

In addition, the maximum amount of funding that may be requested under each research goal is slightly reduced from recent years. Please read the Request for Applications carefully to make sure your application meets the general requirements, including the focus on teachers and other instructional personnel, and does not exceed the funding limit set for your research goal.

PART I: OVERVIEW AND GENERAL REQUIREMENTS

A. INTRODUCTION

In this announcement, the Institute of Education Sciences (Institute) requests applications for research projects that will contribute to its Special Education Research Grants program (CFDA 84.324A). **For 2017, this program will focus specifically on teachers and other instructional personnel responsible for educating students with or at risk for disabilities.**

Recent calls from education researchers indicate a need for additional research on these professionals, including teacher and instructional personnel quality and the knowledge and skills that support student learning, professional development, and state and district policies that support effective teaching and student learning (e.g., Sindelar, Brownell, & Billingsley, 2010). The need for this research seems particularly pressing in special education, with several researchers noting that improved pre-service and in-service training of teachers and other instructional personnel is essential in closing the research-to-practice gap in special education (Boardman, Argüelles, Vaughn, Hughes, & Klingner, 2005; Klingner, Ahwee, Pilonieta, & Menendez, 2003; McLeskey & Billingsley, 2008). We know, for example, that most students with disabilities (95%) are educated in general education classrooms for at least some portion of their school day, with more than half of all students with disabilities (61%) educated in the general education classroom for most of the school day (Snyder & Dillow, 2015). At the same time, according to the most recent Schools and Staffing Survey (U.S. Department of Education, 2013), nearly two-thirds of public school teachers had not received professional development related to teaching students with disabilities in the past year. Additionally, teachers are often unprepared to effectively support and supervise paraprofessionals working with students with disabilities, in spite of an increasing reliance on paraprofessionals in general education classrooms (Drecktrah, 2000; French, 2001; Wallace, Shin, Bartholomay, & Stahl, 2001).

Evidence supports the significant effect that teachers have on students' developmental, academic, and social skills (e.g., Mashburn et al., 2008; Murray & Greenberg, 2001; Rowan, Correnti, & Miller, 2002). However, additional research is needed to understand the specific factors driving the relationship, including the discrete and critical teacher skills linked to improved student outcomes and system-level policies and practices that support effective teaching and student success in school. The field also needs clarity on how to characterize and measure teacher quality as well as how to best promote it through professional development. In addition, despite the extensive use of paraprofessional support in inclusive classrooms (U.S. Department of Education, 2014), there is little research on the efficacy of these professionals in supporting student learning. Thus, the Institute seeks to build on the extensive knowledge base from past research and concentrate on effective strategies and essential knowledge and skills for teachers and other instructional personnel to improve the outcomes of students with or at risk for disabilities.

The Institute will consider only applications that are responsive and compliant to the requirements described in this Request for Applications (RFA) and submitted electronically via Grants.gov (http://www.grants.gov) on time. Separate funding announcements are available on the Institute's website that pertain to other discretionary grant competitions funded through the Institute's National Center for Special Education Research (http://ies.ed.gov/ncser/) and the Institute's National Center for Education Research (http://ies.ed.gov/ncer/). An overview of the Institute's research grant programs is available at http://ies.ed.gov/funding/overview.asp.

The Institute believes that education research must address the interests and needs of education practitioners and policymakers, as well as students, parents, and community members (see http://ies.ed.gov/director/board/priorities.asp for the Institute's priorities). The Institute encourages researchers to develop partnerships with education stakeholder groups to advance the relevance of their work and the accessibility and usability of their findings for the day-to-day work of education practitioners and policymakers. In addition, researchers should plan for disseminating their results to a wide range of audiences that includes researchers, policymakers, practitioners, and the public.

All applications must reflect the FY 2017 focus on teachers and other instructional personnel, and must be submitted to both one topic and one goal. The Special Education Research Grants program continues to use a topic and goal structure. We maintain the topic structure in 2017 to encourage researchers to address a broad range of important instructional personnel issues associated with each topic. The goal structure helps to divide the research process into stages by field for both theoretical and practical purposes. Individually, the topics and goals are intended to help focus the work of researchers. Together, they are intended to cover the range of research, development, and evaluation activities necessary for building a scientific enterprise that can provide solutions to the education problems in our nation. Education has always produced new ideas, new innovations, and new approaches, but only appropriate empirical evaluation can identify those that are in fact improvements. Taken together, work across the Institute's topics and goals should not only yield information about the practical benefits and the effects of specific interventions on education outcomes but also contribute to the bigger picture of scientific knowledge and theory on learning, instruction, and education systems. For the FY 2017 competition, the Institute considers interventions to encompass the wide range of professional development activities, technology tools, and practices, programs, and policies that are implemented at the teacher, school, district, state, or federal level to improve teacher and/or instructional personnel outcomes and subsequent student education outcomes.

This RFA is organized as follows. Part I sets out the general requirements for a grant application. Parts II and III provide further detail on two of those requirements, topics and goals, respectively. Part IV provides general information on applicant eligibility and the review process. Part V describes how to prepare an application. Part VI describes how to submit an application electronically using Grants.gov. You will also find a Glossary of important terms located at the end of this RFA. The first use of each term is hyperlinked to the Glossary.

1. Technical Assistance for Applicants

The Institute encourages you to contact its Program Officers as you develop your application. Program Officers can provide guidance on substantive aspects of your application and answer any questions prior to submitting an application. Program Officer contact information is listed by topic in Part II and in Part VI.H Program Officer Contact Information.

The Institute asks potential applicants to submit a Letter of Intent prior to the application submission deadline. Letters of Intent are optional but strongly encouraged by the Institute. If you submit a Letter of Intent, a Program Officer will contact you regarding your proposed research. Institute staff also uses the

information in the Letters of Intent to identify the expertise needed for the scientific peer-review panels and to secure a sufficient number of reviewers to handle the anticipated number of applications.

In addition, the Institute encourages you to sign up for the Institute's Funding Opportunities Webinars for information on its research competitions, including advice on choosing the correct research competition, grant writing, or submitting your application. For more information regarding webinar topics, dates, and the registration process, see http://ies.ed.gov/funding/webinars/index.asp.

B. GENERAL REQUIREMENTS

1. Teacher and Student Sample

All applications to the FY 2017 Special Education Research Grants program must address both (a) teachers or other instructional personnel and (b) the children and youth with or at risk for disabilities whom they serve.

a) Teachers and Other Instructional Personnel

Proposed research **must** focus on teachers and other instructional personnel responsible for educating students with or at risk for disabilities (student disability is defined below). The Institute will support research focused on the following types of professionals and student age/grade ranges:

- For **infants, toddlers**, **and preschool children**, these professionals may include early intervention specialists, teachers, school or center-based staff, family child care providers, related services personnel (i.e., personnel delivering one of the following related services as defined in §300.34 of the Part B regulations to the 2004 reauthorization of IDEA: speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, counseling services, including rehabilitation counseling, orientation and mobility services, and social work services), or other professionals or paraprofessionals who provide education or early intervention services to infants, toddlers, or preschool children with or at risk for disabilities.

- For **kindergarten through Grade 12 students**, these professionals may include teachers and other instructional personnel (e.g., paraprofessionals) who provide instruction to students with or at risk for disabilities. In FY 2017, NCSER will not accept applications that focus on related services personnel for this age/grade range.

b) Students with or at Risk for a Disability

Proposed research **must** focus on teachers and other instructional personnel responsible for educating students with or at risk for disabilities.

For the purpose of the Institute's special education research programs, a student with a disability is defined in Public Law 108-446, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), as a child "(i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as 'emotional disturbance'), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and (ii) who, by reason thereof, needs special education and related services" (Part A, Sec. 602). An infant or toddler with a disability is defined in IDEA as, "an individual under 3 years of age who needs early intervention services because the individual (i) is experiencing developmental delays, as measured by appropriate diagnostic instruments and procedures in 1 or more of the areas of cognitive development, physical development, communication development, social or emotional development, and adaptive development; or (ii) has a diagnosed physical or mental condition that has a high probability of resulting in developmental delay" (Part C, Sec. 632).

For the purpose of the Institute's special education research programs, a student at risk for a disability is identified on an individual child basis. The determination of risk may include, for example, factors used for moving children to higher tiers in a Response to Intervention model. Evidence consisting only of general population characteristics (e.g., labeling children as "at risk for disabilities" because they are from low-income families or are English learners) is not sufficient for this purpose. In addition, you should clearly identify the disability or disability categories that the sampled children are at risk of developing.

If you plan to focus on teachers and instructional personnel responsible for educating students at risk for a disability, present evidence from research of an association between risk factors in your proposed sample and the potential identification of specific disabilities that the children are at risk for developing (e.g., risk for learning disability).

Across all topics, you may study teachers and instructional personnel who serve students with and without disabilities in the same classroom.

2. Teacher and Student Outcomes

All research supported under the Special Education Research Grants program **must** address (a) teacher and other instructional personnel outcomes, and (b) education outcomes of children and youth with or at risk for disabilities.

a) Teacher and Other Instructional Personnel Outcomes

The Institute is interested in understanding the knowledge (e.g., factual information, concepts, theories, and principles) and skills (e.g., behaviors that directly or indirectly facilitate student learning) that help teachers and other instructional personnel improve student education outcomes.

- Examples of **knowledge outcomes** include, but are not limited to, knowledge of academic content, evidence-based instructional strategies, child development (including the development and characteristics of diverse learners), individual learning differences, services and policies affecting students with disabilities, and instructional practices and technology tools designed to assess and support student learning.

- Examples of **skill outcomes** include, but are not limited to, teachers' ability to use evidence-based instructional strategies; create appropriate learning environments; manage classroom behaviors by recognizing and attending to behavior; plan, design, and tailor appropriate learning experiences; maintain positive teacher-student relationships; assess student progress; use data-based decision-making to make instructional decisions; and communicate and collaborate with families and other professionals.

Note: The Institute will not accept applications that propose only to study teachers' ability to implement a specific student-level intervention or curriculum, where teachers deliver the intervention but are not themselves a target of the research study. Applicants that propose to study teacher implementation of a specific student-focused intervention or curriculum alone will be considered non-responsive to this Request for Applications.

b) Student Outcomes

Applicants should include education outcomes of students that align with their theory of change and may be directly or indirectly impacted by changes in teacher and/or instructional personnel knowledge and skills. When possible, the Institute encourages applicants to consider assessing both proximal (or more direct and immediate) and distal (more long-term) student education outcomes. The Institute recognizes that it can be difficult to assess long-term student outcomes in studies focused on teachers and

instructional personnel, given the time limits in the grant awards. Applicants should use their theory of change to argue for the most appropriate student outcomes given these time limitations.

The Institute is most interested in student outcomes that support success in school and afterwards, including:

- For **infants and toddlers**, the primary outcomes are developmental outcomes pertaining to cognitive, communicative, linguistic, social, emotional, adaptive, functional, or physical development.

- For **preschool**, the primary outcomes are developmental outcomes (cognitive, communicative, linguistic, social, emotional, adaptive, functional, or physical development) and school readiness (e.g., pre-reading, language, vocabulary, early science and mathematics knowledge, social and behavioral competencies that prepare young children for school).

- For **kindergarten through Grade 12,**[1,2] student outcomes include learning, achievement, and higher-order thinking in the core academic content areas of reading, writing, mathematics, and science measured by specific assessments (e.g., researcher-developed assessments, standardized tests, grades, end-of-course exams, exit exams) and student progression through education (e.g., high school graduation, dropout). A range of student social skills, attitudes, and behaviors may be important to students' education and post-school success, so important outcomes also include behaviors that support learning in academic contexts. In addition, the Institute is interested in functional outcomes that improve educational results and transitions to employment, independent living, and postsecondary education for students with disabilities.

3. Authentic Education Settings

Proposed research must be relevant to education in the United States and must address factors under the control of the U.S. education system, whether at the national, state, local and/or school level. To help ensure such relevance, the Institute requires researchers to work within or with data from authentic education settings. Authentic education settings for teachers and other instructional personnel include both in-school settings and formal programs (e.g., early intervention and early childhood special education, after-school programs, distance learning programs, online programs) used by schools or state and local education agencies. These settings are defined as follows:

- **Authentic Education Settings for Infants and Toddlers**:
  - Homes
  - Child care
  - Natural settings for early intervention services

- **Authentic Preschool Settings**:
  - Homes
  - Child care
  - Preschool programs
  - Natural settings for early childhood special education services

[1] Grade 12 includes students who are 18 years or older and are still receiving services under IDEA.
[2] For the Transition topic only, your sample may include students at the post-secondary level *if the purpose is to improve outcomes for students at the secondary level* (e.g., you may collect data from recent high school graduates to inform the development or assess the impact of a professional development program aimed at improving teachers' skills and knowledge around transition planning).

- **Authentic K-12 Education Settings**:
    - Schools and alternative school settings (e.g., alternative schools or juvenile justice settings)
    - Homes, provided that the intervention is school-based (i.e., programs must be coordinated through the school or district)
    - School systems (e.g., local education agencies or state education agencies)
    - Settings that deliver supplemental education services (as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001) (http://www2.ed.gov/policy/elsec/leg/esea02/index.html)
    - Settings that deliver direct student services (under Section 1003A of the Elementary and Secondary Education Act of 1965) (http://legcounsel.house.gov/Comps/Elementary%20And%20Secondary%20Education%20Act%20Of%201965.pdf)
    - Career and Technical Education Centers affiliated with schools or school systems

Please note that a limited amount of laboratory research can also be done under Goals 1, 2, and 5 (see Part III Goal Descriptions and Requirements); however, you may not propose to conduct 100% of your research in the laboratory. A portion of the proposed research must take place in the setting(s) outlined for a specific topic. Applications with 100% of the research taking place in laboratory settings will be deemed non-responsive and will not be sent forward for peer review.

4. Topics

For FY 2017, NCSER is restricting the focus within each topic to research on teachers and other instructional personnel. There are important questions related to teachers and instructional personnel within each of the topics that NCSER has included in prior RFAs. Therefore, as in past years, your application must be directed to 1 of 11 research topics (see Part II Topic Description and Requirements):

Autism Spectrum Disorders; Cognition and Student Learning in Special Education; Early Intervention and Early Learning in Special Education; Families of Children with Disabilities; Mathematics and Science Education; Professional Development for Teachers and Other Instructional Personnel; Reading, Writing, and Language Development; Social and Behavioral Outcomes to Support Learning; Special Education Policy, Finance, and Systems; Technology for Special Education; or Transition Outcomes for Secondary Students with Disabilities. The research topic identifies your field of research.

5. Goals

Your application must also be directed to 1 of 5 research goals (see Part III Goal Descriptions and Requirements): Exploration; Development and Innovation; Efficacy and Replication; Effectiveness; or Measurement. The research goal identifies the type and purpose of the work you will be doing within the topic-defined field. These goals are aligned with the Common Guidelines for Education Research and Development released by the Institute and the National Science Foundation http://ies.ed.gov/pdf/CommonGuidelines.pdf. You should select the research goal that most closely aligns with the purpose of the research you propose, regardless of the specific methodology you plan to use.

- The Exploration goal supports the identification of malleable factors associated with student education outcomes and/or the factors and conditions that mediate or moderate that relationship. In 2017, these malleable factors would focus on variables related to teachers or instructional personnel. Exploration projects are intended to build and inform theoretical foundations for (1) the development of interventions or the evaluation of interventions, or (2) assessment frameworks for the development and validation of assessments.

- The Development and Innovation goal (Development/Innovation) supports the development of new interventions and the further development of existing interventions that are intended to produce beneficial impacts on student education outcomes when implemented in authentic education settings. In 2017, the interventions must focus on teachers and instructional personnel and intend to produce beneficial impacts on teacher and instructional personnel outcomes as well as student education outcomes.

- The Efficacy and Replication goal (Efficacy/Replication) supports the evaluation of fully developed and/or widely used education interventions to determine whether they produce a beneficial impact on student education outcomes relative to a counterfactual when they are implemented under ideal or routine conditions by the end user in authentic education settings. In 2017, the interventions must focus on teachers and instructional personnel and intend to produce beneficial impacts on teacher and instructional personnel outcomes as well as student education outcomes. The Institute is interested in a variety of replication studies including direct replications (Makel and Plucker, 2014), as well as those that vary setting, sample, and implementation conditions.

- The Effectiveness goal supports the independent evaluation of fully-developed education interventions with prior evidence of efficacy to determine whether they produce a beneficial impact on student education outcomes relative to a counterfactual when they are implemented by the end user under routine conditions in authentic education settings. In 2017, the interventions must focus on teachers and instructional personnel and intend to produce beneficial impacts on teacher and instructional personnel outcomes as well as student education outcomes.

- The Measurement goal supports (1) the development of new assessments or refinement of existing assessments (Development/Refinement Projects) or (2) the validation of existing assessments for specific purposes, contexts, and populations (Validation Projects). In 2017, measurement projects can address a wide variety of measures of teachers and/or instructional personnel.

C. APPLICANT REQUIREMENTS

1. Eligible Applicants

Applicants that have the ability and capacity to conduct scientifically valid research are eligible to apply. Eligible applicants include, but are not limited to, non-profit and for-profit organizations, and public and private agencies and institutions, such as colleges and universities.

2. The Principal Investigator and Authorized Organization Representative

The Principal Investigator

The Principal Investigator (PI) is the individual who has the authority and responsibility for the proper conduct of the research, including the appropriate use of federal funds and the submission of required scientific progress reports.[3]

Your institution is responsible for identifying the PI on a grant application and may elect to designate more than one person to serve in this role. In so doing, your institution identifies these PIs as sharing the authority and responsibility for leading and directing the research project intellectually and logistically. All PIs will be listed on any grant award notification. However, institutions applying for funding must designate a single point of contact for the project. The role of this person is primarily for communication

[3] The Institute uses the uniform format for reporting performance progress on federally-funded research projects, the Research Performance Progress Report (RPPR http://www.nsf.gov/bfa/dias/policy/rppr/) for these reports.

purposes on the scientific and related budgetary aspects of the project and should be listed as the PI. All other PIs should be listed as co-Principal Investigators.

The PI will attend one meeting each year (for up to 2 days) in Washington, DC with other Institute grantees and Institute staff. The project budget should include this meeting. Should the PI not be able to attend the meeting, he/she can designate another person who is key personnel on the research team to attend.

The Authorized Organization Representative

The Authorized Organization Representative (AOR) for the applicant institution is the official who has the authority to legally commit the applicant to (1) accept federal funding and (2) execute the proposed project. When your application is submitted through Grants.gov, the AOR automatically signs the cover sheet of the application, and in doing so, assures compliance with the Institute's policy on public access to scientific publications and data as well as other policies and regulations governing research awards (see Part IV.B. Additional Award Requirements).

3. Common Applicant Questions

- *May I resubmit an application from a prior fiscal year that does not focus on teachers and instructional personnel?* Yes, however, you must alter the previous application so that the focus is on teachers and instructional personnel. In addition, you must describe the changes in Appendix A at the end of the project narrative. If your application is one that you consider to be new but that is similar to your previous application, you should include your rationale in Appendix A. Please see Part IV.C.2. Resubmissions and Multiple Submissions for important information about requirements for resubmissions. If you do not revise your application to reflect the FY 2017 focus on teachers and instructional personnel, you may NOT resubmit your application.

- *May I submit an application if I did not submit a Letter of Intent?* Yes, but the Institute strongly encourages you to submit one. If you miss the deadline for submitting a Letter of Intent, contact the appropriate Program Officer for the topic you are interested in and that seems to best fit your research. Please see Part IV.C.1 Submitting a Letter of Intent for more information.

- *Is there a limit on the number of times I may revise and resubmit an application?* No. Currently, there is no limit on resubmissions. Please see Part IV.C.2. Resubmissions and Multiple Submissions for important information about requirements for resubmissions.

- *May I submit the same application to more than one of the Institute's grant programs?* No.

- *May I submit multiple applications?* Yes. You may submit multiple applications if they are substantively different from one another. Multiple applications may be submitted within the same topic, across different topics, or across the Institute's grant programs.

- *May I apply if I work at a for-profit developer or distributor of an intervention or assessment?* Yes. You may apply if you or your collaborators develop, distribute, or otherwise market products or services (for-profit or non-profit) that can be used as interventions, components of interventions, or assessments in the proposed research activities. However, the involvement of the developer or distributor must not jeopardize the objectivity of the research. In cases where the developer or distributor is part of the proposed research team, you should discuss how you will ensure the objectivity of the research in the Project Narrative.

- *May I apply if I intend to copyright products (e.g., curriculum) developed using grant funds?* Yes. Products derived from Institute-funded grants may be copyrighted and used by the grantee for proprietary purposes, but the Department reserves a royalty-free, non-exclusive, and irrevocable right to reproduce, publish, or otherwise use such products for Federal purposes and to authorize others to do so [2 C.F.R. § 200.315(b) (2014) (http://www.ecfr.gov/cgi-bin/text-idx?SID=114a76aaaec6398e1309d731056ee2df&node=pt2.1.200&rgn=div5#se2.1.200_1315).

- *May I apply to do research on non-U.S. topics or using non-U.S. data?* Yes, but research supported by the Institute must be relevant to education in the United States.

- *May I apply if I am not located in the United States or if I want to collaborate with researchers located outside of the United States?* Yes, you may submit an application if your institution is not located in the territorial United States. You may also propose working with sub-awardees who are not located in the territorial United States. In both cases, your proposed work must be relevant to education in the United States. Also, institutions not located in the territorial United States (both primary grantees and sub-awardees) cannot charge indirect costs.

- *I am submitting an application to one of the two goals (Efficacy/Replication or Effectiveness) for which a Data Management Plan (DMP) is required in Appendix E. How will IES review my Data Management Plan?* Program Officers will review the DMP for completeness and clarity. Please be sure to address all parts of the DMP as described under Part III.B.3: Goal 3: Efficacy and Replication and clearly describe your justification for your proposed plans and how they meet the expectations of the IES Data Sharing Policy. Please visit http://ies.ed.gov/funding/researchaccess.asp for information on the IES Data Sharing Policy and information on preparing your DMP.

- *Does the Institute support mixed methods research?* Yes. The Institute encourages the integration of qualitative and quantitative methods throughout the entire research process, from planning and inquiry to instrumentation design, data collection and analysis, and dissemination.

D. CHANGES IN THE FY 2017 REQUEST FOR APPLICATIONS

A number of changes were made to the RFA for the Special Education Research Grants program (CFDA 84.324A) competition in FY 2017. While the major changes are listed below, applicants (submitting new applications or resubmissions) should carefully read the general requirements (see Part I.B. General Requirements) as well as the requirements and recommendations listed under each topic (see Part II Topic Descriptions and Requirements) and each goal (see Part III Goal Descriptions and Requirements) and the instructions for preparing your application (see Part V Preparing your Application), to ensure that you understand and follow these changes. Major changes include the following:

- All applications to the Special Education Research Grants program, regardless of topic, must focus on teachers and other instructional personnel, and follow the requirements outlined in Part I.B General Requirements.

- The maximum amount of funding that may be requested under each research goal is slightly reduced from recent years. Please read the Request for Applications carefully to make sure your application does not exceed the funding limit set for your research goal.

- Language was added to the Research Plan, Recommendations for a Strong Application section of Goal 3 and Goal 4 for applicants proposing Sequential, Multiple Assignment, Randomized Trials (SMARTs) under those goals.

- Except for the Early Intervention and Early Learning in Special Education research topic, NCSER will not accept applications that target related services personnel (i.e., personnel delivering one of the following related services as defined in §300.34 of the Part B regulations to the 2004 reauthorization of IDEA: speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, counseling services, including rehabilitation counseling, orientation and mobility services, and social work services in schools).

- All topics will now support exploratory (i.e., Goal 1) research involving pre-service teachers.

- You have the option of using SciENcv to create an IES Biosketch for each key person and significant contributor to include in your application. See Part V.D.10.

E. READING THE REQUEST FOR APPLICATIONS

The Institute encourages both **Principal Investigators and Authorized Organization Representatives** to read this Request for Applications to learn how to prepare an application that meets three types of criteria:

1. Criteria required for an application to be sent forward for peer review (Requirements).

2. Criteria that make for a strong (competitive) application and are used by the peer reviewers (Recommendations for a Strong Application).

3. Criteria required for a highly rated application to receive funding (Pre-Award Requirements).

1. Requirements

The Institute will examine all applications and determine whether they meet the following criteria. Applications that do not meet these criteria will not be sent forward for peer review.

- **RESPONSIVENESS**
  - Meets **General Requirements** (see Part I).
  - Meets **Project Narrative requirements** for the selected *Research Goal* (see Part III).
  - Meets the following **Award requirements** for the selected *Research Goal* (see Part III).

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary data analysis only: 2 years	$600,000
	Primary data collection & analysis: 4 years	$1,400,000
Development & Innovation	4 years	$1,400,000
Efficacy & Replication	Efficacy & Replication: 4 years	$3,300,000
	Follow-up: 3 years	$1,100,000
	Retrospective: 3 years	$700,000
Effectiveness	Effectiveness: 5 years	$3,800,000
	Follow-up: 3 years	$1,400,000
Measurement	4 years	$1,400,000

- **COMPLIANCE** (see Part V)

- Follows **formatting and font size requirements** (see Part V.C).
- Follows **page limits** (see Part V.D).
- Includes only **allowable content** (see Part V.D).
- Includes all **required content** (see Part V.D) including Appendix A (if a resubmission) and a Data Management Plan (if submitted under the Efficacy and Replication research goal or the Effectiveness research goal - see Part III.A.3 Data Management Plan) (see Part V.D).

- **SUBMISSION** (see Parts V and VI)
  - Submitted electronically via Grants.gov no later than **4:30:00 pm**, Washington, DC time, on August 4, 2016.
  - Completed using the **correct application package** downloaded from Grants.gov (see Part V.B).
  - Includes **PDF files** that are **named and formatted appropriately** and that are **attached to the proper forms** in the application package (see Part V.D and Part VI).

2. Recommendations for a Strong Application

Applications that meet the required criteria discussed above will be forwarded to peer review for an evaluation of their scientific and technical merit (see Part IV.C). Under each of the five Research Goals (see Part III), the Institute provides recommendations to improve the quality of your application. The peer reviewers are asked to consider these recommendations in their evaluation of your application. The Institute strongly encourages you to incorporate the recommendations into your Project Narrative and relevant appendices.

3. Pre-Award Requirements

Applications that are being considered for funding following peer review may be required to provide further information on their proposed research activities (see Part IV.B) before a grant award is made. For example, you may be required to provide updated letters of agreement showing access to the authentic education settings where your work is to take place or to the secondary data sets you have proposed to analyze. You may be asked for additional detail regarding your capacity to disseminate research findings or your Data Management Plan (the former is required for all applications and the latter is required for applications submitted under the Efficacy & Replication and Effectiveness goals). In addition, you may be required to provide greater detail regarding your proposed work. Significant revisions to the project that arise from these information requests will have to be addressed under the original budget. The Institute strongly encourages applicants to carefully review all Requirements and Recommendations for a Strong Application to ensure that their applications propose high-quality work.

PART II: TOPIC DESCRIPTION AND REQUIREMENTS

A. APPLYING TO A TOPIC

For the FY 2017 Special Education Research Grants program, you must submit to 1 of the 11 research topics described in Part II.[4] The research topic identifies your field of research.

Across all topics, you must meet the requirements outlined in *Part I.B. General Requirements* for

1) **Sample**
    a. **teachers and other instructional personnel**
    b. **students with or at risk for a disability**
2) **Outcomes**
    a. **teacher and other instructional personnel outcomes**
    b. **student outcomes**
3) **Authentic education setting**

These requirements, as well as the relevant goal requirements listed under Part III: Goal Descriptions and Requirements, represent the minimum requirements necessary for your proposal to be considered for scientific review. Applications **must** meet these requirements in order to be responsive to this RFA and sent forward for scientific peer review.

For each topic, the following pages describe the purpose and Institute-identified considerations for the field, and list the contact information for the Program Officer.

- **See the Purpose section under each topic for topic-specific descriptions of research appropriate for a given topic**. The Institute recommends that you consider the key student outcomes, the grade(s) and age range(s) of target students, and the setting in which the research will be most relevant when choosing a topic. *Due to the FY 2017 focus on teachers and other instructional personnel, please read carefully the descriptions of research appropriate for your topic of interest.*

- **See the Considerations section under each topic for research gaps that the Institute has identified, and/or issues to keep in mind when you conduct this type of research**. The Institute's peer-review process is not designed to give preferential treatment to applications that address the issues identified under each topic; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

The Institute strongly encourages you to contact the relevant Program Officer listed under each topic if you have questions regarding the appropriateness of a particular project for submission under a specific topic.

[4] You must identify your chosen topic area on the SF-424 Form (Item 4b) of the Application Package (see Part VI.E.1), or the Institute may reject your application as nonresponsive to the requirements of this RFA.

1. Autism Spectrum Disorders (Autism)

Program Officer: Kimberley (Kim) Sprague, Ed.M. (202-245-8464; Kimberley.Sprague@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with Autism Spectrum Disorders (ASD). Specifically, this topic supports research that contributes to the identification of effective strategies and the knowledge and skills necessary for teachers and other instructional personnel to implement *comprehensive school-based interventions* (i.e., interventions that directly target, in a coordinated fashion, *multiple* student outcomes) and improve outcomes for students identified with or at risk for ASD from kindergarten through Grade 12.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

According to the Centers for Disease Control and Prevention (2014), 1 in 68 children is classified as having an ASD. Estimates from their recent National Health Interview Survey (2015) of parents indicate even higher numbers, with 1 in 45 children classified as having an ASD. The highly variable symptoms and the range of severity of symptoms create an extraordinary demand on schools, teachers, and other instructional personnel to provide interventions that meet the range of developmental and academic needs of students with ASD.

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and other instructional personnel need in order to meet the diverse needs of students with ASD. This will contribute to the longer-term outcome of the Autism program, which is an array of comprehensive programs and assessments that have been documented to be effective for improving the developmental, cognitive, communicative, academic, social, behavioral, and functional outcomes of students identified with or at risk for ASD in kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Autism topic should measure **two or more** of the following distinct categories: (a) developmental, (b) cognitive, (c) communicative, (d) academic, (e) social/behavioral, or (f) functional outcomes for students with or at risk for disabilities from kindergarten through Grade 12.
    - Applicants proposing research projects intended to ultimately impact only one student outcome, even though that outcome fits more than one category (e.g., a particular social-communication skill), are not appropriate for the Autism topic; applicants with such projects should consider one of the Institute's other special education research topic areas.

b) Requirements

Applications under the ASD topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Autism Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Autism topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to

applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Little is known about the critical knowledge and skills that teachers and other instructional personnel need to promote positive outcomes in multiple domains for students with or at risk for ASD, and importantly, the professional development necessary to ensure teachers have the required knowledge and skills to successfully implement *comprehensive* interventions that lead to positive outcomes across multiple domains for these students.

- Improving educational outcomes for students with ASD who have diverse learning and behavioral needs presents many challenges, including what teachers and other instructional personnel can do to improve outcomes for students who are nonresponsive to an initial intervention. Researchers are encouraged to consider the professional development needed to improve the knowledge and skills of teachers and instructional personnel to collect and use data to adapt and individually tailor interventions to address the unique needs of individual students with ASD.

- There is a need to better understand the role of paraprofessionals in supporting students with ASD. In particular, more research is needed to understand the critical content and components of training programs for paraprofessionals to explicitly target the knowledge and skills that paraprofessionals need to support the range of developmental and academic needs of students with ASD in the setting in which they are providing this support (e.g., knowledge of the varied needs of students with ASD, ability to collaborate effectively with classroom teachers).

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_autism.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel, and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

2. Cognition and Student Learning in Special Education (Cognition)

Program Officer: Katherine (Katie) Taylor, Ph.D. (202-245-6716; Katherine.Taylor@ed.gov)

a) Purpose

For the Cognition topic, the Institute intends to establish a scientific foundation for learning and development in special education by building on the theoretical and empirical advances that have been gained through the cognitive sciences and applying them to special education practice.

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research on how teachers and other instructional personnel can utilize cognitive science research in ways that improve outcomes for students with or at risk for disabilities in kindergarten through Grade 12. This topic also supports research on the basic processes of adult learning, specifically for teachers and other instructional personnel to acquire, organize, and apply knowledge to support academic outcomes for students with or at risk for disabilities.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

In FY 2017, the Institute is specifically interested in the knowledge and skills that teachers and other instructional personnel need to apply the principles of cognitive science to special education practice and improve the developmental and academic outcomes of students with or at risk for disabilities. This will contribute to the longer-term outcome of the Cognition program, which is an array of tools and strategies (e.g., assessment tools, programs, services, interventions) that are based on principles of learning and information processing gained from cognitive science and demonstrated effective for improving academic outcomes for students with or at risk for disabilities in kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Cognition topic should focus on academic outcomes (pre-reading, reading, pre-writing, writing, early mathematics, mathematics, early science, science, or study skills) and their underlying cognitive processes for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Cognition topic must meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Cognition Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Cognition topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Cognitive science research has identified a range of behaviors that are characteristic of an explicit approach to teaching (e.g., scaffolding, guiding students' practice, modeling) and that support

learning for students with or at risk for disabilities (Gersten, Schiller, & Vaughn, 2000; Swanson, 2001). Additional research is needed to determine the teacher and instructional personnel knowledge and skills that are essential in promoting specific academic outcomes and underlying cognitive processes for these students. Research is also needed on how these skills can be best promoted through professional development.

- The field would benefit from research examining the basic cognitive processes of professional learning, specifically how teachers acquire, organize, and apply knowledge to support academic outcomes for students with or at risk for disabilities and how professional development can promote mastery of these skills across different populations of teachers and instructional personnel.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_casl.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

3. Early Intervention and Early Learning in Special Education (Early Intervention)

Program Officer: Amy Sussman, Ph.D. (202-245-7424; Amy.Sussman@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and professionals who provide instruction for young children with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve the developmental outcomes and school readiness of infants, toddlers, and preschool children (from birth through age 5) with or at risk for disabilities.

Target Population:
Teachers and Other Instructional Personnel for Infants, Toddlers, & Preschool Children

More than one million infants, toddlers, and young children (birth through 5 years old) receive early intervention or early childhood special education services under IDEA, representing a 22% increase in infants and toddlers and 10% increase in preschoolers over the last 10 years (U.S. Department of Education, 2014). As the population of children identified with disabilities increases, more research is needed to determine the most effective teacher and other instructional personnel practices and programs, and systems-level practices and policies (including assessments for screening and monitoring progress), for improving child outcomes and ultimately success in school.

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and other instructional personnel need to improve outcomes for infants, toddlers, and preschool children. This will contribute to the longer-term outcome of the Early Intervention program, which is an array of tools and strategies (e.g., assessment tools, curricula, programs, services, interventions) that have been documented to be effective for improving developmental outcomes or school readiness of infants, toddlers, and young children with or at risk for disabilities.

Please note the following about this topic:

- Research may target early intervention specialists, teachers, school or center-based staff, related services providers (e.g., speech-language pathologists, physical therapists), family child care providers, or other professionals or paraprofessionals who provide education or early intervention services to infants, toddlers, or preschool children with or at risk for disabilities.

- Child outcomes for the Early Intervention topic should focus on developmental (e.g., cognitive, communicative, linguistic, social, emotional, adaptive, functional, or physical development) or school readiness outcomes (i.e., pre-reading, pre-writing, early mathematics, early science, or social-emotional skills that prepare young children for school) for infants, toddlers, and preschool children.

b) Requirements

Applications under the Early Intervention topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Early Intervention Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Early Intervention topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind

when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Many young children with or at risk for disabilities are being served in general education (sometimes referred to as "inclusive") early childhood classrooms. However, more research is needed to better understand what skills and in-class supports are necessary for early childhood teachers and paraprofessionals to provide the most appropriate individualized instruction for these children, as well as how these skills and supports differ by context (e.g., program models, types of disability).

- Early childhood education settings often have high staff turnover, and this instability in caregivers can have a negative impact children. To reduce such turnover and increase the quality of care, more research is needed on policies and practices that early intervention or preschool system leadership can implement to attract and retain a workforce of teachers with appropriate training and skills in working with young children with or at risk for disabilities.

- There have been increasing reports of early childhood education settings suspending or expelling children with behavior problems. To reduce these negative consequences and improve child outcomes, research is needed on early intervention and preschool policies and practices aimed at training and supporting teachers and other providers in how to work with children who have or are at risk for emotional and behavioral disorders.

- Early childhood teachers and early interventionists often conduct ongoing child assessments to individualize education plans and family service plans as well as monitor the progress of young children with or at risk for disabilities. The field would benefit from a better understanding of how to best train and support providers in collecting, interpreting, and using data from the assessments to make the most optimal decisions for each child.

- Young children with or at risk for disabilities receive care and education in a variety of settings (e.g., home, center). More research is needed to understand what systemic policies can be implemented by child care licensing agencies to ensure that providers who work with these children in all types of settings receive the appropriate training and support necessary to improve child outcomes.

- Many early interventionists for infants and toddlers work as part of a larger early intervention system, such a Part C programs. Research is needed to determine how to best train and support a workforce with a wide variety of service providers (e.g., speech therapist, occupational therapist) at the systems level.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_earlyintervention.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

4. Families of Children with Disabilities (Families)

Program Officer: Jacquelyn Buckley, Ph.D. (202-245-6607; Jacquelyn.Buckley@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve family involvement in the education of children with or at risk for disabilities and build and foster family–school partnerships in ways that improve education outcomes for these students from kindergarten through Grade 12.

There is a long-standing belief that parent involvement in education and strong family–school partnerships are critical for achieving optimal developmental outcomes and educational success for students with disabilities. Little is known, however, about effective strategies and the professional development needed for teachers and other instructional personnel to support the involvement of parents of children with disabilities and build family–school partnerships in ways that improve the outcomes of children with disabilities.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and other instructional personnel need to improve family involvement and ultimately student outcomes. This will contribute to the longer-term outcome of the Families program, which is an array of tools and strategies (e.g., assessment tools, programs, services, interventions) that have been documented to be effective for improving family involvement in ways that ultimately improve education outcomes of students with disabilities from kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Families topic can address a range of student education outcomes for students in kindergarten through Grade 12. By education outcomes, the Institute means those measures of learning and achievement that are important to parents, teachers, and school administrators (e.g., grades, achievement test scores, graduation rates, percentage of time spent in the general education environment) as well as social, emotional, and behavioral outcomes that support learning.

b) Requirements

Applications under the Families topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Families Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Families topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Many teachers are not adequately trained to effectively work with families and promote family involvement in their child's education. More research is needed to understand the critical skills teachers and other instructional personnel need to engage families, as well as professional development models to teach those skills.

- There is a need to better understand the role of paraprofessionals in supporting family engagement. In particular, more research is needed, for example, to understand the critical content and components of training programs for paraprofessionals to explicitly target the knowledge and skills that paraprofessionals need to support family engagement (e.g., ability to communicate effectively with families during parent-teacher conferences).

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_families.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

5. Mathematics and Science Education (Math/Science)

Program Officer: Sarah Brasiel, Ph.D. (202-245-6734; Sarah.Brasiel@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve mathematics and science outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

> ***Target Population:***
> *Teachers and Other Instructional Personnel for Students in Grades K-12*

Students with disabilities lag behind their peers without disabilities in both mathematics and science achievement. For example, in the 2015 National Assessment of Educational Progress (NAEP) mathematics assessment, 68 percent of Grade 8 students with disabilities who participated in the assessment scored below the basic level compared to 23 percent of students without disabilities. In the 2011 NAEP science assessment, 66 percent of Grade 8 students with disabilities who participated in the assessment scored below the basic level compared to 31 percent of Grade 8 students without disabilities.

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and other instructional personnel need to improve the mathematics and science outcomes of students with or at risk for disabilities. This will contribute to the longer-term outcome of the Math/Science program, which is an array of tools and strategies (e.g., assessment tools, programs, services, interventions) that have been demonstrated to be effective for improving mathematics and science learning and achievement for students with or at risk for disabilities from kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Math/Science topic should focus on students' mathematics or science knowledge and skill (e.g., Mathematics: addition/subtraction, fractions, algebra, geometry, trigonometry, calculus; Science: physical science, earth science, life science) for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Math/Science topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Math/Science Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Math/Science topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Researchers have identified a variety of strategies to improve students' understanding of fractions. However, teachers and other instructional personnel often struggle to understand and

provide instruction around fractions. Thus, additional research is needed on professional development programs focused on improving fraction knowledge and instruction of teachers and instructional personnel as well as students' mathematics outcomes.

- Response to Intervention (RTI) and multi-tier intervention systems are used to assist students in elementary school who struggle in math. Teachers and other instructional personnel play an integral role in implementing these systems, and more specifically in selecting and providing evidence-based instruction and monitoring student performance. More research is needed to understand the teacher and instructional personnel knowledge and skills that are necessary to effectively implement such systems and improve students' math achievement as well as professional development programs that strengthen this knowledge and skill set.

- Relatively little is known about key features of preservice teacher training programs (e.g., focus on STEM instruction) that are related to mathematics and science outcomes for students with or at risk for disabilities. Exploration research in this area is encouraged to gain a better understanding of the aspects of preservice teacher programs that may show promise for improving student outcomes.

- Improving mathematics outcomes for students with or at risk for disabilities presents many challenges, including what teachers and other instructional personnel can do to improve outcomes for students who are nonresponsive to an initial intervention. Researchers are encouraged to consider the professional development needed to improve the knowledge and skills of teachers and instructional personnel to collect and use data to adapt and individually tailor interventions to address the unique needs of students with math difficulties.

- There is a need to better understand the role of paraprofessionals in supporting math and science instruction. In particular, more research is needed to understand the critical content and components of training programs for paraprofessionals to explicitly target the knowledge and skills that paraprofessionals need to support this instruction in the setting in which they are providing this support (e.g., knowledge of math and science content, ability to collaborate effectively with classroom teachers).

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_mathsci.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

6. Professional Development for Teachers and Other Instructional Personnel (Professional Development)

Program Officer: Katherine (Katie) Taylor, Ph.D. (202-245-6716; Katherine.Taylor@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of professional development programs that promote the knowledge and skills that teachers and other instructional personnel need to engage in *overarching instructional and collaborative practices* that ultimately link to improvements in outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

Overarching instructional and collaborative practices are general practices and strategies (not tied to a particular content area) that are related to how teachers and other instructional personnel plan, deliver, and assess instruction and how they collaborate inside and outside the classroom to meet students' diverse learning needs and promote positive student outcomes across multiple domains.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

Since its inception, the Individuals with Disabilities Education Act (IDEA) has transformed the educational opportunities available to students with disabilities and brought about significant changes for the professionals who work with these students. Recent estimates indicate that 95% of students with disabilities are educated in general education classrooms for at least part of their school day (Snyder & Dillow, 2015). In order to meet the needs of students with disabilities in general education classrooms, schools have implemented co-teaching models or other models of collaboration between general education and special education teachers, and have increasingly relied on paraprofessionals to provide additional support to students with more significant needs. For instance, in 2011, the number of paraprofessionals providing support for students with disabilities in general education classrooms (411,756) was higher than the number of special education teachers (364, 629) in the U.S. (U.S. Department of Education, 2014).

In FY 2017, the Institute is specifically interested in the identification of professional development programs that improve the knowledge and skills that teachers and other instructional personnel need to effectively engage in *overarching instructional and collaborative practices* that link to improved student outcomes. This will contribute to the longer-term outcome of the Professional Development program, which is an array of tools and strategies (e.g., assessment tools, in-service programs, teacher supports) that have been demonstrated to be effective for improving and assessing the performance of teachers and other instructional personnel in ways that are linked to improvements in student outcomes.

Please note the following about this topic:

- In FY 2017, the Professional Development topic will focus on programs to promote the knowledge and skills that teachers need to engage in *overarching instructional and collaborative practices* that are not tied to a particular content area and that contribute to student achievement across multiple domains. Applicants interested in professional development around a particular content area may apply to one of the other topics.

- In FY 2017, NCSER will not accept research that focuses on related service personnel (i.e., personnel delivering one of the following related services as defined in §300.34 of the Part B regulations to the 2004 reauthorization of IDEA: speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy,

counseling services, including rehabilitation counseling, orientation and mobility services, and social work services in schools). [5]

- Student outcomes for the Professional Development topic should address reading, writing, mathematics, science, social and behavioral, functional and adaptive, transition, or general study skills outcomes for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Professional Development topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements***, in order to be responsive and sent forward for scientific peer review.

c) Considerations for Professional Development Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Professional Development topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Co-teaching is meant to provide specialized services to students with disabilities in general education classrooms, while ensuring they also get access to the same academic material as their peers. Professional development for co-teaching has focused on a handful of models that general and special educators can use to meet the needs of diverse learners in one classroom. Additional research is needed on professional development programs that promote co-teaching models that are most effective in improving the development and academic outcomes of students with disabilities.

- In an effort to meet the educational, social, emotional, and behavioral needs of students with disabilities, schools increasingly rely on paraprofessionals to provide support. However, teachers and paraprofessionals rarely receive formal training on how to collaborate in a way that promotes positive student outcomes. Thus, more research is needed on professional development programs that promote effective collaboration between paraprofessionals and teachers and other instructional personnel.

- Researchers have emphasized the importance of aligning teacher evaluation to high-quality feedback and professional development opportunities. However, little research has examined the extent to which this happens and its relation to positive teacher and student outcomes (Shakman, Zweig, Bocala, Lacireno-Paquet, & Bailey, 2016). In addition, research is also needed on professional development programs that promote the knowledge and skills that are necessary for instructional leaders to provide effective feedback and guidance.

[5]Applicants interested in professional development for related service personnel serving Infants, Toddlers, & Preschool Children should see the Early Intervention and Early Learning in Special Education topic.

- The professional development needs of teachers and other instructional personnel vary, potentially requiring differing types, intensity, duration, or sequence of professional development activities. Researchers are encouraged to consider the development and evaluation of adaptive professional development interventions, or professional development interventions that are individually tailored to meet the needs of teachers and/or instructional personnel.[6]

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_professionaldev.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

[6] e.g., Lei, H., Nahum-Shani, I., Lynch, K., Oslin, D., & Murphy, S. A. (2012). A "SMART" design for building individualized treatment sequences. *Annual Review of Clinical Psychology, 8*, 14.1–14.28. doi: 10.1146/annurev-clinpsy-032511-143152.

7. Reading, Writing, and Language Development (Reading/Language)

Program Officer: Sarah Brasiel, Ph.D. (202-245-6734; Sarah.Brasiel@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, the topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve reading, writing, and language skills of students with or at risk for disabilities.

Compared to their peers without disabilities, students with disabilities continue to struggle in reading. For example, in the 2015 National Assessment of Educational Progress (NAEP) reading assessment, 67 percent of Grade 4 students with disabilities who participated in the assessment scored below the basic level compared to 26 percent of students without disabilities. In Grade 8, 63 percent of students with disabilities scored below the basic level compared to 19 percent of students without disabilities.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and instructional personnel need to improve students' reading, writing and language outcomes. This will contribute to the longer-term outcome of the Reading/Language program, which is an array of tools and strategies (e.g., assessments, instructional approaches) that have been documented to be effective for improving reading, writing, or language outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Reading/Language topic should address pre-reading, reading, pre-writing, writing, or language outcomes for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

The long-term outcome of this program will be an array of tools and strategies (e.g., assessment tools, programs, services, interventions) that have been documented to be effective for improving teacher and instructional personnel competencies to improve reading and language skills and achievement for students with or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Reading/Language topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Reading/Language Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Reading/Language topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Response to Intervention (RTI) and multi-tier intervention systems are widely used to assist students in elementary school who struggle with reading (Bradley et al., 2011). Teachers and other instructional personnel play an integral role in implementing these systems, and more specifically in selecting and providing evidence-based reading instruction and monitoring student performance. More research is needed to understand the teacher and instructional personnel knowledge and skills that are necessary to effectively implement such systems and improve students' reading outcomes as well as professional development programs that strengthen the necessary knowledge and skills.

- Research suggests that a modified RTI model, which involves placing students with the most intractable learning problems immediately in more intensive levels of the framework, may be a more efficient and effective way to address academic deficits in middle and high school (Fuchs, Fuchs, & Compton, 2010; Vaughn et al., 2011). Because adolescent academic difficulties are typically well-established, more severe, and involve weaknesses in a variety of domains, certain features of the traditional RTI framework, including universal screening, determining responsiveness to lower tiers before moving to more intensive intervention, and utilizing similar interventions across grades, may be less relevant for students beyond elementary school (Fuchs et al., 2010; Vaughn & Fletcher, 2010). Thus, additional research is needed to determine the knowledge and skills that teachers and instructional personnel require to implement this model with middle and high school students with more serious reading deficits. Research is also needed on professional development programs that promote the necessary knowledge and skills and result in improved student outcomes.

- On the 2011 NAEP writing assessment, 63 percent of 8th graders with disabilities and 64 percent of 12th graders with disabilities scored below the basic level. In contrast, among students without disabilities, 15 percent of 8^{th} graders and 17 percent of 12^{th} graders scored below the basic level. Thus, additional research is needed on professional development efforts focused on improving the knowledge and skills that teachers and instructional personnel need to deliver effective writing instruction and improve the writing skills of students with disabilities.

- Many students with low-incidence disabilities, including students with intellectual disabilities and sensory impairments, demonstrate minimal literacy skills. However, recent research suggests that comprehensive interventions that teach all critical components of reading, including foundational skills like phonemic awareness and phonics, show great promise for improving literacy outcomes (Allor, Mathes, Roberts, Cheatham, & Champlin, 2010; Bergeron, Lederberg, Easterbrooks, Miller, & Connor, 2009; Browder, Mimms, Spooner, & Ahlgrim, 2008). Research is needed to determine the knowledge and skills that teachers and instructional personnel need for the effective delivery of comprehensive interventions and, importantly, the professional development programs that promote the necessary knowledge and skills.

- Relatively little is known about key features of preservice teacher training programs that are related to literacy outcomes for students with or at risk for disabilities. Exploration research in this area is encouraged to gain a better understanding of the aspects of preservice teacher programs that may show promise for improving student outcomes.

- There is a need to better understand the role of paraprofessionals in supporting students with reading difficulties as well as systematic training programs that explicitly target the knowledge and skills that paraprofessionals need to support these students.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_readwrite.asp. *Note that in prior years, the emphasis in the*

RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus. Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

8. Social and Behavioral Outcomes to Support Learning (Social/Behavioral)

Program Officer: Jacquelyn Buckley, Ph.D. (202-245-6607; Jacquelyn.Buckley@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve student behavior and concomitantly, improve education outcomes for students with or at risk for disabilities.

> ***Target Population:***
> *Teachers and Other Instructional Personnel for Students in Grades K-12*

Many students have difficulty managing the challenges of development and exhibit behavioral and psychological problems. In particular, youth with disabilities can experience mental health issues that interfere with academic success, and often create a negative learning environment (e.g., Rones & Hoagwood, 2000; Nyre, Vernberg, Roberts, 2007). Teachers repeatedly identify inappropriate student behavior as one of the greatest challenges to effective teaching (New Teacher Project, 2013). This is especially challenging for new teachers; for example, in 2012, over 40 percent of new teachers reported feeling either "not at all prepared" or "only somewhat prepared" to handle a range of classroom management or discipline situations (Coggshall, Bivona, & Reschly, 2012). Special education teachers often face additional challenges in inclusive classrooms where they need to simultaneously support students with disabilities and assist general education teachers.

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills regarding behavioral management techniques that teachers and instructional personnel need to improve students' social, emotional, and behavioral outcomes that support learning *and* education outcomes. This will contribute to the longer-term goal of the Social/Behavioral program, which is an array of tools and strategies (e.g., assessments, interventions) that have been documented to be effective for preventing behavior problems and improving the behavioral, emotional, social skills, and likewise, the academic performance of students with or at risk for disabilities from kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Social/Behavioral topic should address student social, emotional, and behavioral outcomes that support learning *and* student education outcomes for students in kindergarten through Grade 12. By education outcomes, the Institute means those measures of learning and achievement that are important to parents, teachers, and school administrators (e.g., grades, achievement test scores, graduation rates, percentage of time spent in the general education environment).

b) Requirements

Applications under the Social/Behavioral topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements***, in order to be responsive and sent forward for scientific peer review.

c) Considerations for Social/Behavioral Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Social/Behavioral topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind

when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Ineffective classroom behavior management practices can interfere with a teacher's ability to effectively provide instruction and with other students' ability to learn. Much is known about effective classroom behavior management strategies, but many teachers report a lack of training and support in this area, particularly for addressing the needs of students with the most significant behavior problems (e.g., Cassady, 2011; Oliver, Wehby, & Daniel, 2011; Oliver & Reschly, 2007*).* More research is needed to understand the critical competencies teachers need to implement effective behavioral practices in the classroom, as well as professional development models to teach those competencies.

- There is a need to better understand the role of paraprofessionals in providing behavioral support for students with disabilities as well as systematic training programs that explicitly target the knowledge and skills that paraprofessionals need to provide behavioral support to students.

- Although there has been a growing interest in well-validated measures for child classroom behavior, there are virtually no widely-available, reliable, valid, and brief measures that assess special educators' practices and responses to students' behavior in school. There can be a loss of critical academic instruction time if classroom management procedures are inefficient. A mechanism for identifying relevant teacher behaviors that can also be used as a progress monitoring measure (i.e., sensitive to change in teacher or student behavior) is critically needed.

- Improving social and behavioral outcomes for students presents many challenges, including what teachers and other instructional personnel can do to improve outcomes for students who are nonresponsive to an initial intervention. Researchers are encouraged to consider the professional development needed to improve the knowledge and skills of teachers and instructional personnel to collect and use data to adapt and individually tailor interventions to improve social and behavioral outcomes for students with or at risk for a disability.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_socialbeh.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

9. Special Education Policy, Finance, and Systems (Policy/Systems)

Program Officer: Katherine (Katie) Taylor, Ph.D. (202-245-6716; Katherine.Taylor@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of systemic processes, procedures, and programs pertaining to teachers and instructional personnel that improve the education outcomes for students with or at risk for disabilities from kindergarten through Grade 12.[7]

> ***Target Population:***
> *Teachers and Other Instructional Personnel for Students in Grades K-12*

Through the Policy/Systems program, the Institute supports research to improve outcomes for students with disabilities or at risk for disabilities by identifying and evaluating systemic processes, procedures, and programs pertaining to recruitment, accountability, and retention of teachers and other instructional personnel that may be directly or indirectly linked to student outcomes. That is, rather than focusing on improving student outcomes by changing curricula or student-level intervention approaches, researchers will conduct research on systems-level practices and policies (e.g., organizational strategies, financial and management practices) that are targeted toward teachers and other instructional personnel and are intended to improve the management, coordination, and implementation of systemic programs and services in ways that directly enhance the overall education environment, and indirectly improve student outcomes.

In FY 2017, the Institute is specifically interested in understanding systems-level practices and policies targeting teachers and other instructional personnel and their impact on outcomes for teacher and instructional personnel and students. This understanding will contribute to the longer-term outcome of the Policy/Systems program, which is an array of systems-level practices and policies that have been documented to be effective for improving the education or intervention environment and thereby improving outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

Please note the following about this topic:

- Student outcomes for the Policy/Systems topic should address reading, writing, mathematics, science, social and behavioral, functional and adaptive, transition, or general study skills outcomes for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Policy/Systems topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Policy/Systems Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Policy/Systems topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the research gaps that the Institute has identified. The Institute's peer-review process is not designed to give preferential treatment to applications that address

[7] Research that focuses on finance, policies, systemic interventions, or assessments relevant to infants, toddlers, or young children (i.e., birth through age 5) should apply to the Early Intervention and Early Learning in Special Education research program.

these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- The field would benefit from additional research on the effectiveness of state and district policies and programs for teacher recruitment, compensation, and retention in improving outcomes for special education teachers (e.g., retention, quality, satisfaction) and students.

- More exploratory research is needed to develop a better understanding of the important aspects of teacher preparation programs (e.g., content, pedagogy, and practices) that are related to improved special education teacher retention, teacher effectiveness, and student outcomes.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_systemic.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

10.Technology for Special Education (Technology)

Program Officer: Sarah Brasiel, Ph.D. (202-245-6734; Sarah.Brasiel@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to utilize education technology tools that are designed to improve outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and instructional personnel need to utilize technology tools in ways that improve student outcomes (e.g., reading, writing, mathematics, science, social and behavioral, functional and adaptive, transition, or general study skills outcomes). This will contribute to the longer-term outcome of the Technology program, which is an array of education technology tools that have been documented to be effective for improving outcomes for children with or at risk for disabilities.

Target Population:
Teachers and Other Instructional Personnel for Students in Grades K-12

Please note the following about this topic:

- Student outcomes for the Technology topic should address reading, writing, mathematics, science, social and behavioral, functional and adaptive, transition, or general study skills outcomes for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

b) Requirements

Applications under the Technology topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Technology Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Technology topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Additional research is needed on professional development programs intended to educate teachers and other instructional personnel on the effective use of technology-based interventions, such as simulations, multimedia, and virtual reality, to support students with physical disabilities as they experiment with academic concepts or to support students with disabilities in the core academic content areas of reading, writing, mathematics, and science (e.g., supported electronic text).

- The ability of teachers and other instructional personnel to effectively and efficiently use data to make instructional decisions can be enhanced by education technology measurement tools. However, little is known about the teacher and instructional personnel knowledge and skills that are critical in using technology tools to improve instructional practices and ultimately improve student achievement (e.g., the ability to use technology to facilitate formative student assessment) as well as the professional development programs that can promote the necessary knowledge and skills.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_tech.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

11. Transition Outcomes for Secondary Students with Disabilities (Transition)

Program Officer: Kimberley (Kim) Sprague, Ed.M. (202-245-8464; Kimberley.Sprague@ed.gov)

a) Purpose

In FY 2017, the Institute intends to fund research focused on teachers and other instructional personnel who provide instruction for students with or at risk for disabilities. Specifically, this topic supports research that contributes to the identification of effective strategies and knowledge and skills necessary for teachers and other instructional personnel to improve transition outcomes of secondary students with disabilities.

> ***Target Population:***
> *Teachers and Other Instructional Personnel for Students in Grades K-12*

Despite more than two decades of federal legislation regarding transition, youth with disabilities continue to demonstrate poorer secondary and post-secondary outcomes than their peers without disabilities. For example, according to reports from the National Longitudinal Transition Study-2 (NLTS2), individuals with disabilities were 10 times more likely than their peers without disabilities to earn a high school grade point average below 1.25 (on a scale of 1 to 4) (Newman et al., 2011) and after high school were significantly less likely to be engaged in postsecondary education, job training, or employment (Sanford et al., 2011). Teachers and other instructional personnel face considerable challenges in improving transition outcomes for students with disabilities. However, training in this area often takes place on the job (Kochhar-Bryant, 2003) and special education teachers often feel unprepared to meet their students' transition needs (Bellis, 2003).

In FY 2017, the Institute is specifically interested in understanding the knowledge and skills that teachers and other instructional personnel need to improve transition outcomes for students with disabilities. This will contribute to the longer-term outcome of the Transition program, which is an array of tools and strategies (e.g., assessments, intervention programs) that have been documented to be effective in improving transition outcomes for secondary students with disabilities.

Please note the following about this topic:

- Student outcomes for the Transition topic can include multiple measures of transition outcomes. By transition outcomes, the Institute means those behavioral, social, communicative, functional, occupational, and basic academic skills that enable youth and young adults with disabilities to obtain and hold meaningful employment, live independently, and obtain further training and education (e.g., college, vocational education programs).
    - By basic academic skills, the Institute refers to functional literacy and math skills (e.g., adding and subtracting whole numbers or fractions, as well as calculations involving money or time).
    - Whenever possible and appropriate, research should directly measure post-high school outcomes of interest including, for example, post-high school employment, postsecondary education (e.g., attendance, performance), or independent living.

- Student samples should focus on secondary (middle or high school) students.
    - Students who are 18 years or older *and are still receiving services under IDEA* are allowed to be included in the sample.
    - Your sample may include students at the post-secondary level *if the purpose is to improve services and interventions provided* ***at the secondary level*** (e.g., you may collect data from recent high school graduates to inform the development or assess the impact of a school-based or community-based transition program or practices).

b) Requirements

Applications under the Transition topic **must** meet the requirements listed in ***Part I.B. General Requirements***, as well as the relevant goal requirements listed under ***Part III: Goal Descriptions and Requirements,*** in order to be responsive and sent forward for scientific peer review.

c) Considerations for Transition Research

Through this funding mechanism in FY 2017, the Institute supports field-generated research focused on teachers and other instructional personnel that also meets the requirements for the Transition topic and one of the Institute's five research goals (see Part III: Goal Descriptions and Requirements). The Institute also encourages applicants to consider the issues listed below. Some of these considerations are research gaps that the Institute has identified, and others are issues to keep in mind when you conduct this type of research. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- A gap continues to exist between post-high school outcomes for students with disabilities and their peers without disabilities (Newman, Wagner, Cameto, & Knokey, 2009). Little is known about the critical knowledge and skills teachers and other instructional personnel need to promote positive transition outcomes for students with low- and high-incidence disabilities. Thus, research is needed to identify the knowledge and skills that teachers and other instructional personnel need in order to develop and implement transition plans that lead to positive transition outcomes as well as professional development to promote this knowledge and skill set.

- Cross-agency collaborations and partnerships may contribute to better transition outcomes for students with disabilities (Kohler & Field, 2003). Research is needed on the role that teachers and other instructional personnel play in facilitating and maintaining these relationships in order to promote successful transition outcomes for students with disabilities.

- Improving outcomes after high school for students with or at risk for disabilities presents many challenges, including what teachers and other instructional personnel can do to support this transition. Researchers are encouraged to consider the professional development needed to improve the knowledge and skills of teachers and instructional personnel to collect and use data to adapt and individually tailor interventions to address the unique needs of students transitioning to life after high school (i.e., in continuing education and training, entering the workforce, or involvement in the community).

- The Institute encourages researchers to consider analyzing the effects of teacher and instructional personnel factors on student transition outcomes separately by disability type and severity.

For more information on this topic and to view the abstracts of previously funded projects, please visit: http://ies.ed.gov/funding/ncser_rfas/ncser_transition.asp. *Note that in prior years, the emphasis in the RFA was not necessarily on teachers and other instructional personnel and therefore currently funded projects may not reflect this focus.* Please contact the Program Officer for this topic to discuss your choice of topic and goal, and to address other questions you may have.

PART III: GOAL DESCRIPTIONS AND REQUIREMENTS

A. APPLYING UNDER A GOAL

For the FY 2017 Special Education Research Grants program, you must select one of the five research goals described below.[8] The Institute strongly encourages you to contact the Program Officer listed under the topic you intend to apply to in order to discuss your choice of research goal.

The research goals are designed to span the range from basic research with practical implications to applied research (the latter includes development of education interventions and assessments and the evaluation of the impact of interventions when implemented under both ideal conditions and conditions of routine practice).

- For the FY 2017 competition, the Institute considers interventions to encompass the wide range of professional development activities, technology tools, and practices, programs, and policies that are implemented at the teacher, school, district, state, or federal level to improve teacher and/or instructional personnel outcomes and subsequent student education outcomes.
- The Institute considers assessments to include "any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test" (AERA, 2014). For the FY 2017 competition, the Institute will consider assessment tools that measure knowledge and skills, improve educator practice, evaluate educator job performance, or assess the effectiveness of teachers and/or instructional personnel.

The Institute reminds applicants that mixed-methods approaches (a combination of quantitative and qualitative methods) are welcome in all goals and topics. These two approaches complement one another and when combined, can inform the research process at every stage from exploration through evaluation.

For each goal, the Purpose, Project Narrative Requirements, Recommendations for a Strong Application and Award Requirements are listed.

- The requirements for each goal are the minimum necessary for an application to be sent forward for peer review. **Your application must meet all Project Narrative and Award requirements listed for the goal you select in order for your application to be considered responsive and sent forward for peer review.**
- In order to improve the quality of your application, the Institute offers Recommendations for a Strong Application following each set of Project Narrative requirements. The peer reviewers are asked to consider the recommendations in their evaluation of your application. **The Institute strongly encourages you to incorporate the recommendations into your project narrative.**

[8] You must identify a specific research goal for your application on the SF-424 Form (Item 4b) of the Application Package (see Part VI.E.1) or the Institute may reject the application as nonresponsive to the requirements of this Request for Applications.

1. Goal One: Exploration

a) Purpose

The Exploration goal supports projects that will identify malleable factors associated with teacher and/or other instructional personnel outcomes and corresponding student education outcomes and/or the factors and conditions that mediate or moderate these relationships. Exploration projects are intended to build and inform theoretical foundations to support (1) the development of interventions (see Goal Two: Development and Innovation) or the evaluation of interventions (see Goal Three: Efficacy and Replication), or (2) assessment frameworks for the development and validation of assessments (see Goal Five: Measurement). If you plan to develop or evaluate an intervention or assessment, you must apply under one of the other appropriate research goals or your application will be deemed nonresponsive and will not be forwarded for peer review.

Projects under the Exploration goal analyze primary data, secondary data, or both and will result in a conceptual framework that identifies the following:[9]

- A relationship between a malleable factor and a teacher and/or other instructional personnel outcome and corresponding student education outcome, or
- Factors that mediate or moderate these relationships, or
- Both a relationship between a malleable factor and relevant outcomes *and* the factors that mediate or moderate these relationships.

> ***Malleable factors***
>
> Things that can be changed by the education system to improve teacher and/or other instructional personnel outcomes and subsequent student education outcomes.

b) Requirements and Recommendations

Applications under the Exploration goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for an Exploration project application **must** include four sections – Significance, Research Plan, Personnel, and Resources.

[9] Under the Exploration goal, the Institute does not support work to develop an intervention or to test the causal impact of an intervention. If you intend to examine an intervention that first requires further development, you should apply under the Development and Innovation goal. Similarly, if you intend to combine existing interventions (or components from different interventions) into a single new intervention and examine that new intervention, you should apply under the Development and Innovation goal. If you intend to estimate the causal impact of an intervention, you should apply under the Efficacy and Replication goal.

a. Significance – The purpose of this section is to explain why it is important to study these particular malleable factors and their potential association with teacher and/or other instructional personnel outcomes and corresponding student education outcomes.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** include a:

(i) Description of the factors to be studied.

Recommendations for a Strong Application: The Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed exploratory work.

Project Aims:

- Describe how the factors are malleable and under the control of the education system, the relationships you expect them to have with specific teacher and/or other instructional personnel outcomes and subsequent student education outcomes, and any mediators or moderators you will be studying.

Rationale:

- Include your theory for and evidence that the malleable factors may be associated with beneficial teacher and/or other instructional personnel outcomes and corresponding student education outcomes or that the mediators and moderators may influence such an association.

Practical Importance:

- Discuss how the results will go beyond what is already known and how the results will be important both to the field of special education research and to education practice and education stakeholders (e.g., practitioners and policymakers). If you are studying an existing intervention (or a major component of an intervention), discuss how widely the intervention is used and why an Exploration study, in contrast to an Efficacy/Replication evaluation, will have practical importance.

Future Work:

- Discuss how the results of this work will inform the future development of an intervention or assessment or the future decision to evaluate an intervention.

b. Research Plan – The purpose of this section is to describe the methodology you will use to study these particular malleable factors (and mediators or moderators, if applicable) and their potential association with better teacher and/or other instructional personnel outcomes and subsequent student education outcomes.

A variety of methodological approaches are appropriate under the Exploration goal including, but not limited to, the following: (1) primary data collection and analyses, (2) secondary data analyses, (3) meta-analyses that go beyond a simple identification of the mean effect of interventions (Shadish, 1996), or (4) some combination of these three approaches.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** include a description of the:

(i) Research design

(ii) Data analysis procedures

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed exploratory work.

Secondary data analyses are often based on nationally representative surveys or evaluations (e.g., http://nces.ed.gov/pubsearch/licenses.asp); administrative data from federal, state or district agencies or non-public organizations; and/or data from previous research studies.

Research Design:

- Describe your research design with enough detail to show how it is appropriate for addressing your research aims.
- Note whether your project is based solely on secondary data analysis or includes primary data collection and analysis alone or in conjunction with secondary data analysis (as this will affect the maximum duration and award you may request). Recoding of video-recorded observations can be considered primary data collection. If you plan to code unstructured data (e.g., video files, audio files, transcripts, etc.) this is considered a form of primary data collection for the purposes of this RFA. In contrast, if you plan to analyze structured data files that do not require coding prior to analysis this is considered secondary data analysis only.
- As discussed in the General Requirements, Exploration projects involving primary data collection can include a limited amount of laboratory research so long as it adheres to the sample and outcomes requirements outlined for the topic you select; however, applicants may not propose to conduct 100 percent of their research in the laboratory. A portion of the research must take place in the setting required for the chosen topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.
    - If you propose laboratory research, you should justify the amount that you are choosing to do and describe how it will provide relevant evidence for identifying malleable factors that could improve education outcomes in authentic education settings. In addition, the materials and procedures should allow for generalizability to authentic education settings.

Sample:

- Consider your sample and its relation to addressing the overall aims of the project (e.g., what population the sample represents).
- For primary data collection and secondary data analysis, include the following:
    - Describe the base population, the sample, and the sampling procedures (including justification for any exclusion and inclusion criteria).

- For all quantitative inferential analyses, demonstrate that the sample provides sufficient power to address your research aims.

- For longitudinal studies using primary data collection, describe strategies to reduce attrition.
- If you intend to link multiple data sets, provide sufficient detail for reviewers to be able to judge the feasibility of the linking plan.
- For meta-analysis, include the following:
  - Describe and justify the criteria for including or excluding studies.
  - Describe the search procedures for ensuring that a high proportion of eligible studies (both published and unpublished) will be located and retrieved.
  - Describe the coding scheme and procedures that will be used to extract data from the respective studies and the procedures for ensuring the reliability of the coding.
  - Demonstrate that sufficient numbers of studies are available to support the meta-analysis and that the relevant information is reported frequently enough and in a form that allows an adequate data set to be constructed.

Measures:

- Describe the measures and key variables you will be using in the study for both teachers and/or other instructional personnel and students. For the outcome measures, discuss their validity and reliability for the intended purpose and population.
- For secondary data, note the response rate or amount of missing data for the measures.
  - If the data will be transformed to create any of the key variables, describe this process.
- For primary data collection, include the following:
  - Describe the data to be collected and the procedures for data collection.
  - If the data will be transformed to create any of the key variables, describe this process.
  - If observational data or qualitative data are to be collected and analyzed statistically, describe how the data will be collected and coded (including the procedures for monitoring and maintaining inter-rater reliability), and describe the mechanism for quantifying the data if one is needed.
- For meta-analysis, include the following:
  - Define the effect size statistics to be used, along with the associated weighting function, procedures for handling outliers, and any adjustments to be applied (e.g., reliability corrections).
  - Describe the procedures for examining and dealing with effect size heterogeneity.

Data Analysis:

- Describe the statistical models to be used. Discuss why they are the best models for testing your hypotheses, how they address the multilevel nature of education data, and how well they control for selection bias.

- Discuss analyses to explore alternative hypotheses.
- Discuss how you will address exclusion from testing and missing data. Propose to conduct sensitivity tests to assess the influence of key procedural or analytic decisions on the results.
- Provide separate descriptions for any mediator or moderator analyses.
- For qualitative data, describe the intended approach to data analysis, including any software that will be used.

Timeline:

- Provide a timeline for each step in your project including such actions as sample selection and assignment, data collection, data analysis, and dissemination.
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

c. Personnel – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** include a description of the:

(i) Research team

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker or practitioner audiences.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out coordinated or integrated tasks.
- Key personnel may be from for-profit entities; however, you should include a plan describing how their involvement will not jeopardize the objectivity of the research.
- If you have previously received an Exploration award, indicate whether your work under that grant has contributed to (1) the development of a new or refinement of an existing intervention, (2) the rigorous evaluation of an intervention, or (3) the development, refinement or validation of an assessment.

d. Resources – The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** include a description of the resources to:

(i) Conduct the project

(ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Exploration work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
    - Include information about student, teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Exploration projects are expected to identify potentially important associations between malleable factors and teacher and/or other instructional personnel outcomes and subsequent student education outcomes.
- Exploration projects are not intended to evaluate the impact of interventions. Therefore, your findings are likely to be most useful in pointing out potentially fruitful areas for further attention from researchers, policymakers and practitioners rather than providing proof or strong evidence for taking specific actions.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can

assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.

- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.

(2) Awards

An Exploration project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Exploration award that solely involves secondary data analysis or meta-analysis is 2 years**. An application of this type proposing a project length of greater than 2 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum duration of an Exploration award that involves primary data collection is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Exploration project solely involving secondary data analysis or meta-analysis is $600,000 (total cost = direct + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum award for an Exploration project involving primary data collection is $1,400,000 (total cost = direct + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

2. Goal Two: Development and Innovation

a) Purpose

The Development and Innovation goal (Development/Innovation) supports the development of new interventions and the further development of existing interventions that are intended to produce beneficial impacts on teacher and/or instructional personnel outcomes and subsequent student education outcomes when implemented in authentic education settings. The Institute will not accept applications under Development/Innovation that propose only minor development activities and are mainly focused on testing the intervention's impacts. Instead, if you have an intervention that is ready to be tested for efficacy you should apply to the Efficacy and Replication goal.

Projects under the Development/Innovation goal will result in the following:

- A fully-developed version of the proposed intervention.
- A well-specified theory of change for the intervention.
- Data that demonstrate that end users understand and can feasibly implement the intervention in an authentic education setting.
- A fidelity of implementation measure (or measures) to assess whether the intervention is delivered as intended by the end users in an authentic education setting.
- Pilot data regarding the intervention's promise for generating the intended beneficial teacher and/or instructional personnel outcomes and resulting student education outcomes and reaching the level of fidelity of implementation considered necessary to generate the intended beneficial outcomes.

Intervention

The wide range of professional development activities, technology tools, and practices, programs, and policies that are implemented at the teacher, school, district, or state level to improve teacher and/or instructional personnel outcomes and ultimately student education outcomes.

Fully-developed intervention

An intervention is fully developed when all materials, products, and supports required for its implementation by the end user are readily available for use in authentic education settings.

b) Requirements and Recommendations

Applications under the Development/Innovation goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for a Development/Innovation project application **must** include four sections – Significance, Research Plan, Personnel, and Resources.

a. Significance – The purpose of this section is to explain why it is important to develop this intervention.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** include a:

(i) Description of the intervention to be developed or refined.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Development/Innovation work.

- Clearly describe the specific issue or problem your work will address including the overall importance of this issue/problem and how its resolution will contribute to the improvement of teacher and/or instructional personnel outcomes and subsequent student education outcomes. Strong applications will discuss the importance of the issue or problem to education stakeholders, such as practitioners and policymakers.
- Clearly describe current typical practice to address this issue or problem and why current practice is not satisfactory.
- Clearly describe your proposed intervention, its key components, and how it is to be implemented. If you are proposing to develop an adaptive intervention, clearly identify and present a rationale for the key components of the intervention, including decision points, tailoring variables, decision rules, and intervention options.[10]
- Contrast your proposed intervention with current typical practice and its identified shortcomings. Your description of the proposed intervention should show that it has the potential to produce substantially better teacher and/or instructional personnel outcomes and corresponding student education outcomes because
    - it is sufficiently different from current practice and does not suffer from the same shortcomings;
    - it has key components that can be justified, using theoretical or empirical reasons, as powerful agents for improving the outcomes of interest; and
    - its implementation appears feasible for the end user(s) (e.g., instructional personnel, schools) given their resource constraints (e.g., time, funds, personnel, schedules).
- Clearly describe the initial theory of change for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change), along with theoretical justifications and empirical evidence that support it. Keep in mind that you may need to revise your theory over the course of the project.
    - Your theory of change should describe the component or components of the planned intervention that will foster better teacher and/or instructional personnel outcomes directly and student education outcomes indirectly through changed teacher and/or instructional personnel outcomes. A more complete theory of change could include further details such as the sample representing the target population, components of the intervention, underlying processes contributing to the changes in relevant outcomes, and key moderators (such as setting, context, teacher and/or student characteristics).

[10] e.g., Lei, H., Nahum-Shani, I., Lynch, K., Oslin, D., & Murphy, S. A. (2012). A "SMART" design for building individualized treatment sequences. *Annual Review of Clinical Psychology, 8*, 14.1–14.28. doi: 10.1146/annurev-clinpsy-032511-143152.

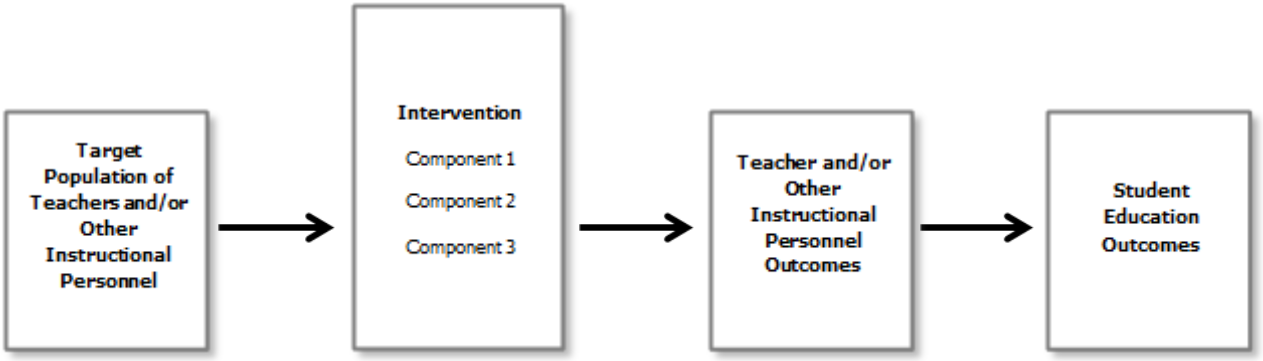

Figure 1. A diagram of a simple theory of change.

- Discuss the expected practicality of the intervention including why the intervention is likely to be accepted and implemented and how it could contribute to resolving the issue or problem that forms the basis of the project. You should also note the level of resources expected for the implementation of the intervention (e.g., teacher training, classroom time, materials).
- If you are applying for a Development/Innovation award to further develop an intervention that was the focus of a previous Development/Innovation or Efficacy/Replication project, you should (1) justify the need for another award, (2) describe the results and outcomes of prior or currently held awards to support the further development of the intervention (e.g., evidence that the intervention in its current form shows promise for improving teacher and/or instructional personnel outcomes or evidence from a prior efficacy study indicates the need for further development), and (3) indicate whether what was developed has been (or is being) evaluated for efficacy and describe any available results from those efficacy evaluations and their implications for the proposed project.

b. Research Plan – The purpose of this section is to describe the methodology you will use to develop your intervention, document its feasibility, and determine its promise for improving the targeted teacher and/or instructional personnel outcomes and resulting student education outcomes and reaching the level of fidelity of implementation necessary to improve those outcomes.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** include a description of the:

(i) Development process

(ii) Research design and data analysis procedures for pilot study

Development Process

The method for developing the intervention to the point where it can be used by the intended end users.

Pilot Study

A study designed to provide evidence of the promise of the fully-developed intervention for achieving its intended outcomes when it is implemented in an authentic education setting.
Note that a pilot study is different from studies conducted during the development process. The latter are designed to inform the iterative development process (e.g., by identifying areas for further development, testing individual components of the intervention).

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed Development/Innovation work.

Measures:

- Your measures should address (a) usability, (b) feasibility, (c) fidelity of implementation, (d) teacher and/or instructional personnel outcomes, (e) student education outcomes, and (f) expected intermediate outcomes.
- Discuss the procedures for collecting the data for these measures. For pre-existing measures of teacher and/or instructional personnel outcomes, student education outcomes, or fidelity, discuss each measure's psychometric properties (e.g., reliability and validity). If you need to develop a measure, you should describe what will be developed, why it is necessary, how it will be developed, and, as appropriate, the process for checking its reliability and validity.

Usability

The extent to which the intended user understands or can learn how to use the intervention effectively and efficiently, is physically able to use the intervention, and is willing to use the intervention.

Feasibility

The extent to which the intervention can be implemented within the requirements and constraints of an authentic education setting.

Fidelity of implementation

The extent to which the intervention is being delivered as it was designed to be by end users in an authentic education setting.

Development Process:

- As you describe the development process, make clear what will be developed, how it will be developed to ensure usability, and the chronological order of development (e.g., by providing a timeline either in the Project Narrative or Appendix B).
    - Discuss how you will develop the initial version of the intervention or indicate that there is already an initial version that you intend to revise.
    - Discuss how you will refine and improve upon the initial version of the intervention by implementing it (or components of it), observing its functioning, and making necessary adjustments to ensure usability and feasibility. Lay out your plan for carrying out a systematic, iterative development process.
    - The Institute does not require or endorse any specific model of iterative development and suggests that you review models that have been used to develop interventions (e.g., Fuchs and Fuchs, 2001; Diamond and Powell, 2011) to identify processes appropriate for your work.
    - There is no ideal number of iterations (revise, implement, observe, revise). Instead, identify and justify your proposed number of iterations based on the complexity of the intervention and its implementation. This process should continue until you determine that the intervention can be successfully used by the intended end users.
    - As discussed in the General Requirements, you may propose to do a limited amount of laboratory research during the development process as long as it adheres to the sample and outcomes requirements outlined for the topic you

select; however, applicants may not propose to conduct 100 percent of their research in the laboratory. A portion of the research must take place in the setting required for the chosen topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.

- Be clear about how that research will contribute to the development of an intervention that is intended to be implemented in authentic education settings by the proposed end user. In addition, the materials and procedures should allow for generalizability to authentic education settings.

Evidence of Feasibility of Implementation:

- To determine whether the intervention can be implemented within the requirements and constraints of an authentic education setting (e.g., classroom, school, district), describe your method to collect feasibility data both in the type of setting (e.g., classroom or school) and with the end users for which the intervention is intended.
- You can collect feasibility evidence at any point during the project.

Fidelity of Implementation:

- Discuss how you will develop the fidelity of implementation measures that will be used to monitor the implementation of the intervention. Information collected on the usability and feasibility of implementation can contribute to the development of fidelity of implementation measures. Prototype fidelity measures can be tested and refined in separate studies or in the pilot study.
- If your intervention includes a training component for end users, you should also develop a measure of the fidelity of implementation of the training.

Pilot Study:

- Describe the design of the pilot study,[11] the data to be collected, the analyses to be done, the criteria to determine if the intervention can be implemented with fidelity, and the criteria you will use to determine whether any change in teacher and/or instructional personnel outcomes and subsequent student education outcomes is consistent with your underlying theory of change and is large enough to be considered a sign of promise of the intervention's success.
- To ensure that Development/Innovation projects focus on the development process, a maximum of 35 percent of project funds (direct and indirect funds) should be used for the pilot study (i.e., the implementation of the intervention, data collection, and analysis of pilot data).
- The Institute intends for the pilot study to provide evidence of the promise of the fully-developed intervention for achieving its intended outcomes that is of high enough quality to justify an Efficacy study (should promise be found). The type of pilot study you propose will depend upon the intervention, the level at which the intervention is implemented (i.e., teacher, school), and the need to stay within the maximum 35 percent

[11] The meaning of the term "pilot study" differs by discipline. As noted in the glossary, the Institute defines a pilot study as a study separate from the development process that examines the promise of the fully-developed intervention for achieving its intended beneficial impacts on student outcomes.

of grant funds that could be used for the pilot study. As a result, pilot studies may include, but not be limited to:[12]

  - Efficacy studies (e.g., fully-powered, randomized controlled studies).
  - Underpowered efficacy studies (e.g., randomized controlled trials with a small number of teachers or schools that provide unbiased effect size estimates of practical consequence which can stand as evidence of promise while not statistically significant).
  - Single-case studies that meet the pilot design standards for individual single-case studies set by the What Works Clearinghouse.[13,14]
  - Quasi-experimental studies based on the use of comparison groups with additional adjustments to address potential differences between groups (i.e., use of pretests, control variables, matching procedures).

- Identify the measures to be used for all outcomes identified in your theory of change. Give careful consideration to the measures of teacher and/or instructional personnel outcomes and student education outcomes used to determine the intervention's promise and consider the inclusion of both those sensitive to the intervention as well as those of practical interest to students, parents, education practitioners, and policymakers (e.g., student grades, achievement test scores, graduation rates, percentage of time spent in the general education environment).
- Describe how you will measure fidelity of implementation by the intended end user during the pilot and how you will determine whether fidelity is high enough to expect beneficial teacher and/or instructional personnel outcomes and subsequent student education outcomes. Discuss possible responses if you find lower than expected fidelity (e.g., efforts to increase fidelity). In addition, if a training component is included in the intervention, then evidence of promise should also address the fidelity of implementation of the training component and whether it is high enough to expect end users to implement the intervention as planned.
- Address whether the comparison group is implementing something similar to the intervention during the pilot and, if so, provide a determination of whether the treatment and comparison groups are different enough to expect the predicted teacher and/or instructional personnel outcomes and corresponding student education outcomes.

Timeline:

- Provide a timeline for each step in your project including such actions as the development process, pilot study sample selection and assignment, data collection, data analysis, and dissemination.
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

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[12] This list is meant to be illustrative and not exhaustive as other designs may be appropriate.
[13] See the WWC's Procedures and Standards Handbook, Version 3.0 at http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19 (primarily Appendix E).
[14] For information on calculating between-case effect sizes in studies using single-case design, see Shadish, W.R., Hedges, L.V., Horner, R.H., and Odom, S.L. (2015). The Role of Between-Case Effect Size in Conducting, Interpreting, and Summarizing Single-Case Research (NCER 2015-002) Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. This report is available at http://ies.ed.gov/ncser/pubs/2015002/.

c. Personnel – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** include a description of the:

(i) Research team

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker or practitioner audiences.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out coordinated or integrated tasks.
- Key personnel may be from for-profit entities. However, if these entities are to be involved in the commercial production or distribution of the intervention to be developed, include a plan describing how their involvement will not jeopardize the objectivity of the research.
- If you have previously received an award from the Institute to develop an intervention and are applying for a grant to develop a new intervention, you should indicate whether the previous intervention has been evaluated for its efficacy (by yourself or another research team).

d. Resources – The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** include a description of the resources to:

(i) Conduct the project

(ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Development/Innovation work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
    - Include information about student, teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Development/Innovation projects are expected to develop new or revise existing interventions. For example, if the results of the pilot study indicate the intervention is promising, dissemination efforts should focus on letting others know about the availability of the new intervention for testing and further adaptation. Dissemination efforts from these projects could also provide useful information on the design process, how intervention development can be accomplished in partnership with practitioners, and what type of new practices are feasible or not feasible for use by practitioners.
- Your pilot study will normally not provide evidence of the impact of the interventions, and the Institute does not expect dissemination efforts for broad implementation of interventions until such evidence is obtained.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.

(2) Awards

A Development/Innovation project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of a Development / Innovation project is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
    - Your proposed project length should be based upon aspects of the intervention that may affect the time needed for its development and piloting (e.g., the complexity of the intervention, the length of its implementation period, and the time expected for its implementation to result in changed teacher and/or instructional personnel outcomes and subsequent student outcomes).

Cost Maximums:

- **The maximum award for a Development / Innovation project is $1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
    - Your pilot study should require no more than 35 percent of your total budget. You should note the budgeted cost of the pilot study (i.e., its implementation, data collection, and analysis of pilot data) and its percentage of the total budget in your Narrative Budget Justification.

3. Goal Three: Efficacy and Replication

a) Purpose

The Efficacy/Replication goal supports the evaluation of fully-developed education interventions to determine whether they produce a beneficial impact on teacher and/or instructional personnel outcomes and subsequent student education outcomes relative to a counterfactual when they are implemented under ideal or routine conditions by the end user in authentic education settings.

Projects under the Efficacy/Replication goal will result in the following:

- Evidence regarding the impact of a fully-developed intervention on relevant teacher and/or instructional personnel outcomes and corresponding student education outcomes relative to a comparison condition using a research design that meets the Institute's What Works Clearinghouse evidence standards (http://ies.ed.gov/ncee/wwc).
- Conclusions about and revisions to the theory of change that guides the intervention and a discussion of the broader contributions to the theoretical and practical understanding of strategies and knowledge and skills for teachers and other instructional personnel to improve student outcomes.
- Information needed for future research on the intervention.
    - If a beneficial impact is found, the identification of the organizational supports, tools, and procedures needed for sufficient implementation of the core components of the intervention under a future Replication study or Effectiveness study.
    - If no beneficial impact is found, a determination of whether and how to revise the intervention and/or its implementation under a future Development/Innovation project.

The Institute supports four types of studies under the Efficacy/Replication goal:

- Efficacy - A study that tests an intervention's beneficial impacts on teacher and/or instructional personnel outcomes and resulting student education outcomes in comparison to an alternative practice, program, or policy.
- Replication – An efficacy study designed to generate additional evidence that an intervention

Intervention

The wide range of professional development activities, technology tools, practices, programs, and policies that are implemented at the teacher, school, district, or state level to improve teacher and/or instructional personnel outcomes and ultimately student education outcomes.

Fully-developed intervention

An intervention is fully developed when all materials, products, and supports required for its implementation by the end user are readily available for use in authentic education settings.

Ideal conditions

Conditions that provide a more controlled setting, such as greater implementation support or a more homogeneous sample, under which the intervention may be more likely to have beneficial impacts.

Routine conditions

Conditions under which an intervention is implemented that reflect 1) the everyday practice occurring in homes, childcare, natural settings for infants and toddlers, classrooms, schools, and districts and 2) the heterogeneity of the target population.

End user

The person intended to be responsible for the implementation of the intervention.

improves teacher and/or instructional personnel outcomes and subsequent student education outcomes by testing an intervention that has been shown to have beneficial impacts on relevant outcomes in a previous efficacy study. The Institute is interested in a variety of replication efforts, direct replications (Makel and Plucker, 2014) as well as those that vary setting, sample, and implementation conditions.

  - Replication studies can include projects that aim to replicate an intervention that previously showed beneficial impacts for teachers and/or instructional personnel only, as long as the current study measures both teacher and/or instructional personnel and student education outcomes.

- Efficacy Follow-Up – An efficacy study that tests the longer-term impacts of an intervention that has been shown to have beneficial impacts on teacher and/or instructional personnel outcomes and student education outcomes in a previous or ongoing efficacy study. Efficacy follow-up studies are of two types:

  - Follow teachers and/or instructional personnel who took part in the original study in subsequent years, when they are not receiving the intervention, in order to determine if the beneficial effects are maintained.[15]

  - Follow students who were taught by teachers and/or other instructional personnel targeted in the original study, in order to determine if the initial beneficial effects are maintained.

- Retrospective – An efficacy study that analyzes retrospective (historical) secondary data to test an intervention implemented in the past, and, as a result, may not be able to meet the requirements for Efficacy/Replication projects regarding fidelity of implementation, comparison group practice, or cost analysis.

b) Requirements and Recommendations and Data Management Plan

Applications under the Efficacy/Replication goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

Applications under the Efficacy/Replication goal **must** include a Data Management Plan as described in **(3) Data Management Plan**.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

Data Management Plan

A plan for making the final research data from the proposed project accessible to others.

(1) Project Narrative

The 25-page project narrative for an Efficacy/Replication project application **must** include four sections – Significance, Research Plan, Personnel, and Resources.

[15] These studies examine the sustainability of the intervention's implementation and impacts after the additional resources provided by the original study are withdrawn. If the teachers will continue to receive the intervention in subsequent years, you should propose a replication study, rather than a follow-up study.

a. Significance – The purpose of this section is to explain why it is important to test the impact of the intervention on teacher and/or instructional personnel outcomes and corresponding student education outcomes under the proposed conditions and with the proposed sample.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** include a:

(i) Description of the intervention to be evaluated.

(ii) For a Follow-up study, a description of the evidence from the original Efficacy study.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Efficacy/Replication work.

- Note the type of study proposed (Efficacy, Replication, Follow-Up, or Retrospective) early in the Significance section.
- Include in your description of the fully-developed intervention that you propose to evaluate:[16]
    - The intervention's components.
        - For adaptive interventions, clearly identify the key components of the intervention including decision points, tailoring variables, decision rules, and intervention options.[17]
    - Processes and materials (e.g., manuals, websites, training, coaching) that will be used to support implementation of the intervention.
    - Evidence that the intervention is fully developed and ready for implementation in authentic education settings (e.g., all materials and implementation supports are available).[18]
- Describe the intervention's context:
    - Identify the target population and where implementation will take place.
    - Identify who the end users of the intervention are and describe how implementation will be carried out by them.
    - Describe the ideal or routine conditions under which the intervention will be implemented.
        - Ideal conditions provide a more controlled setting under which the intervention may be more likely to have beneficial impacts. For example, ideal conditions could include more implementation support than would be provided under routine practice in order to ensure adequate fidelity of implementation. Ideal conditions could also include a more homogeneous sample of students, teachers, schools, and/or districts

[16] If the intervention you wish to test and/or its implementation processes and materials are not yet fully developed, you should apply under Development/Innovation to complete it.
[17] e.g., Lei, H., Nahum-Shani, I., Lynch, K., Oslin, D., & Murphy, S. A. (2012). A "SMART" design for building individualized treatment sequences. *Annual Review of Clinical Psychology, 8*, 14.1–14.28. doi: 10.1146/annurev-clinpsy-032511-143152.
[18] Applications to evaluate newly developed and non-widely used interventions often require more of this type of evidence than those evaluating widely-used interventions.

than would be expected under routine practice in order to reduce other sources of variation that may contribute to outcomes.

- Routine conditions reflect the everyday practice occurring in homes, childcare, natural settings for infants and toddlers, classrooms, schools, and districts including the expected level of implementation that would take place if no study was being done and a sample that represents the heterogeneity of the students, teachers, schools, and districts being studied.

- Clearly describe the initial theory of change for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change), along with theoretical justifications and empirical evidence that support it. Keep in mind that you may need to revise your theory over the course of the project.
    - Your theory of change should describe the component or components of the planned intervention that will foster better teacher and/or instructional personnel outcomes directly and student education outcomes indirectly through changed teacher and/or instructional personnel outcomes. A more complete theory of change could include further details such as the sample representing the target population, level of exposure to the components of the intervention, underlying processes contributing to the changes in relevant outcomes, key moderators (such as setting, context, teacher and/or student characteristics), and the specific measures used for the outcomes.

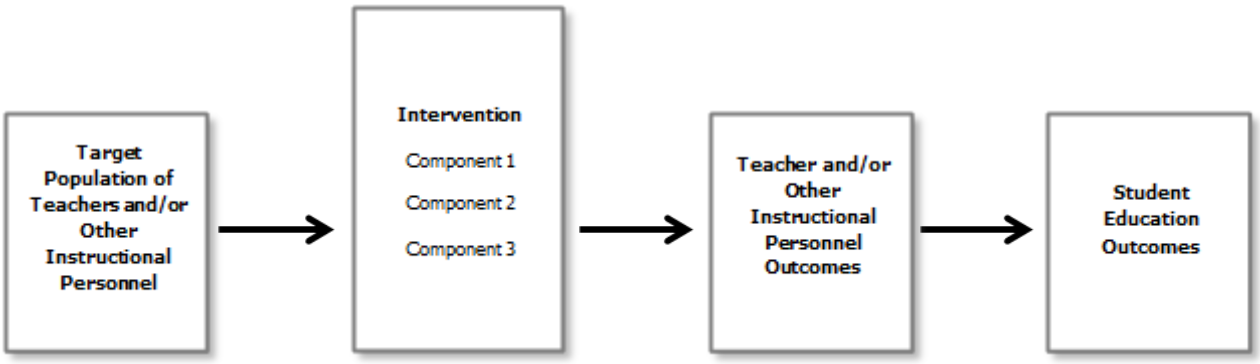

Figure 1. A diagram of a simple theory of change.

- To provide a compelling rationale for testing the impact of the intervention on teacher and/or instructional personnel outcomes and subsequent student education outcomes in the proposed manner, address why the intervention is likely to produce better outcomes relative to current practice (or argue that the intervention is current practice if widely used) and discuss the overall practical importance of the intervention (i.e., why education practitioners or policymakers should care about the results of the proposed evaluation). The specifics of your rationale will differ by the type of study you propose:
    - For an efficacy study of a **widely-used intervention** that has not been rigorously evaluated (e.g., a commercial program or a specific state program), provide evidence of its widespread use (across the country or within a state, large district, or multiple districts) and if available, information about the fidelity of its implementation. In addition, describe any prior studies that have attempted to evaluate the intervention, note their findings, and discuss why your proposed study would improve on past work. Widely-used interventions may not have

evidence of impact or promise of impact on teacher and/or instructional personnel outcomes and student education outcomes, but their use may be so widespread that their evaluation could have important implications for practice and policy.

- For an efficacy study of a **not widely used intervention** that has not been rigorously evaluated (e.g., an intervention produced by a Development/Innovation project), focus more on the intervention's potential versus its current practical importance. Also focus on the evidence showing the intervention's readiness for implementation, feasibility, fidelity of implementation, and promise for achieving its intended outcomes (as described under Development/Innovation).

- For a **replication study**, describe the existing evidence of the intervention's fidelity of implementation and beneficial impact on teacher and/or instructional personnel outcomes and student outcomes (if student outcomes were assessed) from at least one prior study that would meet the methodological requirements of the Institute's Efficacy/Replication goal. To this end, clearly describe the prior efficacy study (or studies), including the sample, design, measures, fidelity of implementation, analyses, and results so that reviewers have sufficient information to judge its quality. If student outcomes were not assessed in a prior study, state that clearly. If student outcomes were assessed, but the intervention did not lead to significant impacts, describe potential reasons for the lack of impacts and address how you will modify the earlier intervention to increase the likelihood of impact on students (see below). Also, justify why impacts found in the prior study would be considered of practical importance. In addition, describe the practical and theoretical importance of carrying out another efficacy study on the intervention, compare your study to the prior efficacy studies, and describe the additional contribution your study will make. Replication studies are intended to generate additional evidence that an intervention improves teacher and/or instructional personnel outcomes and subsequent student education outcomes. They may generate this evidence in conditions similar to the original efficacy study or in different contexts. They may also identify ways to increase the impact of the intervention, improve its efficiency, or reduce its cost in comparison to what was done in the prior efficacy study. For example, your study may:

    - Attempt to replicate exactly the earlier efficacy study to provide more robust evidence of the intervention's beneficial impact.

    - Evaluate the intervention with different samples or implementation contexts to determine if similar impacts are found when:

        - The intervention is used with different populations of teachers and/or instructional personnel (e.g., differences in credentials, experience).

        - The intervention examines impact on students (if not evaluated in the original study); or different populations of students (e.g., differences in socio-economic status, race/ethnicity, prior achievement level); and/or different types of schools (e.g., those in state improvement programs vs. those not, rural vs. urban).

        - The intervention is somewhat modified (e.g., adding supportive components, varying emphases among the components, changing the ordering of the components). Testing modifications

of the intervention should not require further development of the intervention (such work is supported under Development/Innovation). If you intend to evaluate an intervention that has been significantly changed from an earlier efficacy study, you should propose another efficacy study, rather than a replication study, and discuss the reasons for the changes.

- The implementation of the intervention is modified (e.g., changing the level of support, providing support in alternative ways such as in-person vs. online).

- For an **efficacy follow-up study**, describe the existing evidence of the intervention's beneficial impact on teacher and/or instructional personnel outcomes and student outcomes from a previous efficacy study (either completed or ongoing) that would meet the methodological requirements of the Institute's Efficacy/Replication goal. To this end, clearly describe the completed or ongoing efficacy study, including the sample, design, measures, fidelity of implementation, analyses, and results so that reviewers have sufficient information to judge its quality. Explain why the original impacts would be expected to continue into the future (this may require revising the original theory of change), and why the impacts found would be considered of practical importance. In addition, provide evidence that you have access to research participants for successful follow up (e.g., letters of agreement from schools or districts to be included in Appendix D).[19] Additional recommendations apply to the two types of Efficacy Follow-up studies:

  - Following Teachers and/or Instructional Personnel: You should discuss attrition during the prior study and your ability to follow these professionals in subsequent years, as these are key factors in the success of such follow-up studies. It is helpful to include a CONSORT flow diagram[20] showing the numbers of participants at each stage of the prior study. Also you should discuss expected levels of attrition in the follow-up study, how it will be reduced, and its impact on the interpretation of the results. In addition, you should discuss how you will determine whether the incoming cohort of students taught by the targeted teachers and/or instructional personnel is similar to the original student cohort, whether the incoming cohort of treatment and control students are similar enough to compare to the prior cohort, and what you will do if they are not similar in either way.

  - Following Students Originally Taught by Targeted Teachers and/or Other Instructional Personnel: Students should include those who were impacted by the original intervention targeting teachers and/or instructional personnel. You should include a CONSORT flow diagram showing the numbers of students at each stage of the prior study in both treatment and control groups. You should discuss expected attrition in the follow-up study, how it will be reduced, its impact on the

[19] Grant funds should not be used to support implementation of the intervention in an efficacy follow-up project. However, districts and schools can support implementation through their own funds.

[20] The Consort flow diagram that provides a structure for tracking participants at each study stage can be found at http://www.consort-statement.org/consort-statement/overview0/

interpretation of the results, and how you plan to address differential attrition if it occurs.

- For a **retrospective study** relying on secondary analysis of historical data, discuss how widespread the intervention's use was and provide conceptual arguments for the importance of evaluating the intervention including the intervention's relevance to current education practice and policy. If the intervention is ongoing, discuss why a historical evaluation would be relevant compared to an evaluation using prospective data. If the intervention is no longer in use, address how the results of your evaluation would be useful for improving today's practice and policy. Be clear on what the existing data will allow you to examine and what issues you will not be able to address due to a lack of information. This discussion should include what is known or could be determined about the intervention's fidelity of implementation and comparison group practice. Discuss the implications for interpreting your results due to a lack or absence of such information.

b. Research Plan – The purpose of this section is to describe the evaluation of the intervention.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** include a description of the:

(i) Research design

(ii) Power analysis

(iii) Data analysis procedures

(iv) Cost analysis

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed Efficacy/Replication work. If you propose a single-case experimental design as the primary means for establishing efficacy, please see additional recommendations outlined below in *Additional Recommendations for Single-Case Experimental Designs Proposed as the Primary Design for Efficacy Studies.*

Sample and Setting:

- Discuss the population you intend to study and how your sample and sampling procedures will allow you to draw inferences for this population.
- Define your sample and sampling procedures for the proposed study, including justification for exclusion and inclusion criteria.
- Describe strategies to increase the likelihood that participants (e.g., schools, teachers, and/or students) will join the study and remain in the study over the course of the evaluation.
- Describe the setting in which the study will take place (e.g., the size and characteristics of the intervention setting, classroom, school and/or the surrounding community), and how this may affect the generalizability of your study.

Research Design:

- Describe how you will be able to make causal inferences based on the results from your design and how potential threats to internal validity will be addressed. Designs for Efficacy/Replication projects can include the following:
    - Randomized controlled trials are preferred whenever feasible because they have the strongest internal validity for causal conclusions. Clearly identify and present a convincing rationale for the unit of randomization (e.g., teacher or school) and explain the procedures for random assignment, including how the integrity of the assignment process will be ensured.
        - Sequential, Multiple Assignment, Randomized Trials (SMARTs)[21] represent one type of research design that can be used to evaluate an adaptive treatment. Clearly identify and provide a rationale for each stage of the SMART, including the critical decision point for each stage, and the randomization process that subsequently takes place at each critical decision point.
    - Regression discontinuity designs can also provide unbiased estimates of the effects of education interventions. Explain the appropriateness of the assignment variable, show that there is a true discontinuity, document that no manipulation of the assignment variable has occurred and that the composition of the treatment and comparison group does not differ in ways that would indicate selection bias, and include sensitivity analyses to assess the influence of key procedural or analytic decisions on the results.
    - Single-case experimental designs are intended to demonstrate a causal or functional relationship between two variables using a small number of cases.[22] *Single-case experimental designs are not descriptive case studies.* For single-case designs, describe the repeated, systematic measurement of a dependent variable before, during, and after the active manipulation of an independent variable (i.e., intervention).
        - Single-case experimental designs can also be used as a complementary method to further understand the results of randomized controlled trials in efficacy studies. For example, you could implement a complementary study using single-case experimental designs to determine how manipulation of intervention components may affect outcomes for children who were nonresponsive to the intervention tested in the randomized controlled trial.
    - Quasi-experimental designs (other than a regression discontinuity design) can be proposed when randomization is not possible. Justify how the proposed design permits drawing causal conclusions about the effect of the intervention on the intended outcomes, explain how selection bias will be minimized or modeled,[23] and discuss those threats to internal validity that are not addressed convincingly by the design and how conclusions from the research will be tempered in light of these threats. Because quasi-experimental designs can meet the WWC's

[21] e.g., Lei, H., Nahum-Shani, I., Lynch, K., Oslin, D., & Murphy, S. A. (2012). A "SMART" design for building individualized treatment sequences. *Annual Review of Clinical Psychology, 8*, 14.1–14.28. doi: 10.1146/annurev-clinpsy-032511-143152.
[22] A case is a unit of intervention administration and data analysis. A case may be a single participant or a cluster of participants (e.g., a classroom or community).
[23] For more information, see Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin Company.

standards for evidence with reservations only, it is also important to detail how you will ensure that the study meets these standards (e.g., by establishing baseline equivalence between treatment and comparison groups and preventing high and/or non-equivalent attrition).

- For all types of research designs, including those using random assignment, explain how you will document that the intervention and comparison conditions are equivalent at the outset of the study and how you will document the level of bias occurring from overall and differential attrition rates.
- Describe and justify the counterfactual. In evaluations of education interventions, individuals in the comparison group typically receive some kind of treatment. It may be a well-defined alternative treatment or a less well-defined standard or frequent practice across the district or region. A clear description of the intervention and the counterfactual helps reviewers decide whether the intervention is sufficiently different from what the comparison group receives to produce different teacher and/or instructional personnel outcomes and subsequent student education outcomes.
- Describe strategies or existing conditions that will reduce potential contamination between treatment and comparison groups.

Power Analysis: [24]

- Discuss the statistical power of the research design to detect a reasonably expected and minimally important effect of the intervention on teacher and/or instructional personnel outcomes and student education outcomes and consider how the clustering of participants (e.g., teachers in schools, students in classrooms) will affect statistical power.
- Identify the minimum effect of the intervention that you will be able to detect, justify why this level of effect would be expected from the intervention, and explain why this would be a practically important effect.
- Detail the procedure used to calculate either the power for detecting the minimum effect or the minimum detectable effect size. Include the following:
    - The statistical formula you used.
    - The parameters with known values used in the formula (e.g., number of clusters, number of participants within the clusters).
    - The parameters whose values are estimated and how those estimates were made (e.g., intraclass correlations, role of covariates).
    - Other aspects of the design and how they may affect power (e.g., stratified sampling/blocking, repeated observations).
    - Predicted attrition and how it

Include power analyses for all proposed causal analyses.

Include enough information so that reviewers can duplicate your power analysis.

[24] Power analysis is not necessary for applicants proposing single-case experimental designs.

was addressed in the power analysis.

- Provide a similar discussion regarding power for any causal analyses to be done using subgroups of the proposed sample.
- For Sequential, Multiple Assignment, Randomized Trials (SMARTs), clearly identify your power to detect differences at each level of randomization as appropriate for your research questions.

Outcome Measures:

- Include teacher and/or instructional personnel outcome measures that will be sensitive to the change in performance that the intervention is intended to bring about (e.g., researcher-developed measures that are aligned with the experiences of teachers and/or instructional personnel in the treatment group); teacher and/or instructional personnel outcome measures that are not strictly aligned with the intervention and that therefore could capture change in the control group; student education outcome measures that align with your theory of change; and measures of outcomes that are of practical interest to students, parents, and educators. For example, applications to evaluate professional development programs to improve teachers' math knowledge should include measures of teacher math knowledge, measures of teacher math instruction, and measures of student math achievement. Applications to evaluate professional development programs to improve teachers' class management should include measures of teacher knowledge and skills related to classroom management as well as practical measures of student behaviors that are relevant to schools, such as academic engaged time, attendance, tardiness, drop-out rates, disciplinary actions, or graduation rates.
- Describe the psychometric properties (reliability and validity) of your teacher and/or instructional personnel outcome measures, student education outcome measures, and intermediate outcome measures.

Moderators and Mediators:

- While not required, the analysis of moderators and mediators can strengthen your application. Such analyses can make your research more useful to policymakers and practitioners by helping to explain how or under what conditions a program or policy improves teacher and/or instructional personnel outcome measures and resulting student education outcomes. Such analyses can also improve the quality and usefulness of future research syntheses or meta-analysis that may draw upon your work.

- Focus on a small set of moderators for which there is a strong theoretical and/or empirical base to expect they will moderate the impact of the intervention on relevant outcomes. Give particular consideration to factors that may affect the generalizability of the study (e.g., whether the intervention works for some groups of teachers, instructional personnel, and/or students but not others, or in schools with particular characteristics).

- Conduct exploratory analyses of potential mediators of the intervention. Most Efficacy/Replication studies are not designed or powered to rigorously test the effects of specific mediating variables; however, exploratory analyses can be used to better understand potential mediators of the intervention.

- Describe the measures for the moderators and mediators you will examine, how they will be collected, and how they will be analyzed.

Determining Fidelity of Implementation and Comparison Group Practice:

- Identify the measures of the fidelity of implementation of the intervention and describe how they capture the core components of the intervention.
- If the intervention includes training of the intervention's end user, also identify the measures of fidelity of implementation of the training/trainers.
- Identify the measures of comparison group practices so that you can compare intervention and comparison groups on the implementation of critical features of the intervention and determine whether there was clear distinction in what the groups received or whether both groups received key elements of the intervention.
- Show that measures of fidelity of implementation and comparison group practice are sufficiently comprehensive and sensitive to identify and document critical differences between what the intervention and comparison groups receive.
- If needed, you can propose devoting a short period of time (e.g., 2-6 months) to develop a measure of fidelity of implementation or comparison group practice.
- Describe your plan for determining the fidelity of implementation of the intervention within the treatment group and the identification of practice (especially practices that are similar to the treatment) in the comparison group.
    - Include initial studies of fidelity of implementation and comparison group practice to be completed within the first year that end users are to implement the intervention.
    - Include studies on the fidelity of training and coaching provided to those implementing the intervention.
    - Include a plan for how you would respond if either low-fidelity (of implementation or training) or similar comparison group practice is found in the initial studies.[25]

Determining fidelity of implementation and comparison group practice early on are essential to preventing a confounding of implementation failure and intervention failure.

- Retrospective studies may, but are not required to, include information on fidelity of implementation and comparison group practices. If available, the inclusion of this information strengthens the application.

[25] As Efficacy studies may take place under ideal conditions, an early finding of low fidelity during the first year of implementation can be addressed (e.g., by increasing implementation support and monitoring activities, addressing obstacles to implementation, replacing or supplementing the sample in ways that preserve the design). Findings of unexpected similar practice in the comparison group may also be addressed (e.g., by further differentiation of the intervention or additional data collection to determine how similar practice is in both groups). Such actions are to prevent studies that find no impacts of an intervention but cannot determine whether the finding was due to the intervention or its implementation.

Data Analysis:

- Detail your data analysis procedures for all analyses (e.g., impact study, subgroup analyses, fidelity of implementation study), including both quantitative and qualitative methods.
- Make clear how the data analyses directly answer your research questions.
- Address any clustering (e.g., teachers in schools, students in classrooms).
- Discuss how exclusion from testing and missing data will be handled in your analysis. If you intend to link multiple data sets, provide sufficient detail for reviewers to judge the feasibility of the linking plan.

Cost Analysis:

- Include a description of your plan to conduct a cost analysis. The cost analysis should help schools and districts understand the monetary costs of implementing the intervention (e.g., expenditures for personnel, facilities, equipment, materials, training, and other relevant inputs). Annual costs should be assessed to adequately reflect expenditures across the lifespan of the program (e.g., start-up costs and maintenance costs). Intervention costs can be contrasted with the costs of comparison group practice to reflect the difference between them. The Institute is not asking for an economic evaluation of the program (e.g., cost-benefit, cost-utility, or cost-effectiveness analyses), although such analyses can be proposed.
- In your plan, you should include information about the following:
    - how you will identify all potential expenditures;
    - how you will compute per-unit costs for each expenditure;
    - how you will separate start-up costs from annual maintenance costs and how you will estimate the total cost of each; and
    - the degree to which your cost analysis, based on your study's sample, will generalize to other schools and districts.
- Retrospective studies may, but are not required to, include a plan to conduct a cost analysis. If information about implementation cost is available, the inclusion of a plan to analyze those costs strengthens the application.

Timeline:

- Provide a timeline for each step in your evaluation including such actions as sample selection and assignment, baseline data collection, intervention implementation, ongoing data collections, fidelity of implementation and comparison group practice study, impact analysis, and dissemination.
- Indicate procedures to guard against bias entering into the data collection process (e.g., pretests occurring after the intervention has been implemented or differential timing of assessments for treatment and control groups).
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

Additional Recommendations for Single-Case Experimental Designs Proposed as the Primary Design for Efficacy Studies

Recommendations for a Strong Application: The Institute recommends that you include the following in your Research Plan to strengthen the methodological rigor of the proposed single-case research.[26]

- Describe a research design plan that meets WWC evidence standards.[27]
- Provide a strong argument supporting the use of a single-case experimental design as opposed to a randomized controlled trial (e.g., focusing on paraprofessionals supporting students with low-incidence disabilities).
- Include outcome measures that are not strictly aligned with the intervention.
- Describe quantitative analyses, in addition to visual analysis, for analyzing the resulting data. You are encouraged to consider the use of between-case effect size in your analysis. [28]

c. Personnel – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** include a description of the:

(i) Research team

Recommendations for a Strong Application: The Institute recommends that, in order to address the above requirements, you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and other venues targeting policymakers and practitioners.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out coordinated or integrated tasks.
- Include a plan to ensure the objectivity of the research if key personnel were involved in the development of the intervention, are from for-profit entities (including those involved in the commercial production or distribution of the intervention), or have a financial interest in the outcome of the research. Such a plan might include how assignment of units to treatment and comparison conditions, supervision of outcome data collection and

[26] See recently published work on advancing the rigor of single-case research designs (e.g., Kratochwill, T.R., and Levin, J.R. (Eds.). (2014). *Single-Case Intervention Research: Methodological and Statistical Advances*. Washington, D.C.: American Psychological Association).
[27] See the WWC's Procedures and Standards Handbook, Version 3.0 at http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19 (primarily Appendix E).
[28] For more information, see Shadish, W.R., Hedges, L.V., Horner, R.H., and Odom, S.L. (2015). The Role of Between-Case Effect Size in Conducting, Interpreting, and Summarizing Single-Case Research (NCER 2015-002) Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. This report is available at http://ies.ed.gov/ncser/pubs/2015002/

coding, and data analysis are assigned to persons who were not involved in the development of the intervention and have no financial interest in the outcome of the evaluation.

- If you have previously received an award from any source to evaluate an intervention, discuss any theoretical and practical contributions made by your previous work. By demonstrating that your previous evaluation was successful, you provide a stronger case for your evaluation of another intervention.

d. Resources – The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** include a description of the resources to:

(i) Conduct the project

(ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Efficacy/Replication work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
    - Include information about student, teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Efficacy/Replication projects are to causally evaluate the impact of intervention on teacher and/or instructional personnel outcomes and corresponding student outcomes. The Institute considers all types of findings from these projects to be potentially useful to researchers, policymakers, and practitioners.

- Findings of a beneficial impact on teacher and/or instructional personnel outcomes and corresponding student outcomes could support the wider use of the intervention, given the availability of any ideal conditions if used, and the further adaptation of the intervention to conditions that are less ideal or quite different.
- Findings of no impacts on teacher and/or instructional personnel outcomes and/or student outcomes (with or without impacts on more intermediate outcomes) are important for decisions regarding the ongoing use and wider dissemination of the intervention, further revision of the intervention and its implementation, and revision of the theory of change underlying the intervention.

> ***Disseminate findings of impact and findings of no impact.***
>
> ***Ensure that dissemination goes beyond the researcher audience in ways that are of use to practitioners and policymakers.***

- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project. These should include:
    - Publications in scientific, peer-reviewed journals and presentations at academic conferences
    - Reporting findings to any education agencies and schools that provided the project with data and data-collection opportunities
    - Publications and presentations in venues designed for policymakers, practitioners, and the general public including electronic venues (e.g., websites, webinars, podcasts, videos)

(2) Awards

An Efficacy/Replication project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Efficacy or a Replication project is 4 years.** An application of either type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum duration of an Efficacy Follow-Up or a Retrospective project is 3 years.** An application of either type proposing a project length of greater than 3 years

will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Efficacy or a Replication project is $3,300,000 (total cost = direct costs + indirect costs).** An application of either type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum award for an Efficacy Follow-Up project is $1,100,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
    - Grant funds for follow-up projects cannot be used for implementation of the intervention.
- **The maximum award for a Retrospective project is $700,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

(3) Data Management Plan

Applications under the Efficacy/Replication goal must include a Data Management Plan (DMP, no more than five pages in *Appendix E*) that describes your plans for making the final research data from the proposed project accessible to others**. Applications that do not contain a DMP in Appendix E will be deemed nonresponsive to the Request for Applications and will not be accepted for review.** Resources that may be of interest to researchers in developing a data management plan can be found at http://ies.ed.gov/funding/researchaccess.asp.

DMPs are expected to differ depending on the nature of the project and the data collected. By addressing the items identified below, your DMP describes how you will meet the requirements of the Institute policy for data sharing. The DMP should include the following:

- Type of data to be shared.
- Procedures for managing and for maintaining the confidentiality of Personally Identifiable Information.
- Roles and responsibilities of project or institutional staff in the management and retention of research data, including a discussion of any changes to the roles and responsibilities that will occur should the Project Director/Principal Investigator and/or co-Project Directors/co-Principal Investigators leave the project or their institution.
- Expected schedule for data access, including how long the data will remain accessible (at least 10 years) and acknowledgement that the timeframe of data accessibility will be reviewed at the annual progress reviews and revised as necessary.
- Format of the final dataset.
- Dataset documentation to be provided.
- Method of data access (e.g., provided by the Project Director/Principal Investigator, through a data archive) and how those interested in using the data can locate and access them.

- Whether or not a data agreement that specifies conditions under which the data will be shared will be required.
- Any circumstances that prevent all or some of the data from being made accessible. This includes data that may fall under multiple statutes and, hence, must meet the confidentiality requirements for each applicable statute (e.g., data covered by Common Rule for Protection of Human Subjects, FERPA and HIPAA).

The costs of the DMP can be covered by the grant and should be included in the budget and explained in the budget narrative. The peer-review process will not include the DMP in the scoring of the scientific merit of the application. The Institute's Program Officers will be responsible for reviewing the completeness of the proposed DMP. If your application is being considered for funding based on the scores received during the peer-review process but your DMP is determined incomplete, you will have to complete your DMP before an award will be made.

4. Goal Four: Effectiveness

a) Purpose

The Effectiveness goal supports the independent evaluation of fully-developed education interventions with prior evidence of efficacy to determine whether they produce a beneficial impact on teacher and/or instructional personnel outcomes and subsequent student education outcomes relative to a counterfactual when they are implemented by the end user under routine conditions in authentic education settings. Unlike Efficacy/Replication, Effectiveness projects evaluate only interventions with prior evidence of efficacy when implemented without special support.[29]

Projects under the Effectiveness goal will result in the following:

- Evidence regarding the impact of a fully-developed intervention on relevant teacher and/or instructional personnel outcomes and corresponding student education outcomes relative to a comparison condition using a research design that meets the Institute's What Works Clearinghouse evidence standards (http://ies.ed.gov/ncee/wwc).
- Conclusions on and revisions to the theory of change that guides the intervention and a discussion of the broader contributions to the theoretical and practical understanding of education processes and procedures.
- Information needed for future research on the intervention.
    - If a beneficial impact is found, the identification of the organizational supports, tools, and procedures needed for sufficient implementation of the core components of the intervention under routine conditions.
    - If no beneficial impact is found, an examination of why the findings differed from those of the previous

Intervention

The wide range of professional development activities, technology tools, and practices, programs, and policies that are implemented at the teacher, school, district, or state level to improve teacher and/or instructional personnel outcomes and ultimately student education outcomes.

Fully-developed intervention

An intervention is fully-developed when all materials, products, and supports required for its implementation by the end user are readily available for use in authentic education settings.

End user

The person intended to be responsible for the implementation of the intervention.

Routine conditions

Conditions under which an intervention is implemented that reflect 1) the everyday practice occurring in homes, childcare, natural settings for infants and toddlers, classrooms, schools, and districts and 2) the heterogeneity of the target population.

Independent evaluation

An evaluation carried out by individuals who did not and do not participate in the development or distribution of the intervention and have no financial interest in the outcome of the evaluation.

[29] Effectiveness studies differ from Efficacy/Replication studies in several ways: (1) the intervention must already have been found to have beneficial impacts on teacher and/or instructional personnel outcomes and student education outcomes by at least one prior efficacy study; (2) the intervention must be implemented under routine conditions; (3) retrospective studies based on secondary data analyses are not allowed; (4) the project team involved in the evaluation activities must be independent of the intervention; and (5) the award duration is longer, cost maximums are higher, and a limit is placed on the percent of funds that can be used for implementing the intervention.

efficacy studies on the intervention and a determination of whether and what type of further research would be useful to revise the intervention and/or its implementation.

The Effectiveness goal also supports Effectiveness Follow-up studies to determine the long-term impacts of an intervention for teachers and/or instructional personnel who showed beneficial results during an Effectiveness study in subsequent years when they do not continue to receive the intervention.

Retrospective studies based on secondary analysis of historical data are not allowed under the Effectiveness goal and should be submitted under Efficacy/Replication. However, applications under Effectiveness may include secondary analysis of historical data to supplement the primary analysis.

b) Requirements and Recommendations and Data Management Plan

Applications under the Effectiveness goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In addition, applications under the Effectiveness goal **must** include a Data Management Plan as described in **(3) Data Management Plan**.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

> ***Data Management Plan***
>
> A plan for making the final research data from the proposed project accessible to others.

(1) Project Narrative

The 25-page project narrative for an Effectiveness project application **must** include four sections – Significance, Research Plan, Personnel, and Resources.

a. Significance – The purpose of this section is to explain why it is important to independently test the impact of the intervention on teacher and/or instructional personnel outcomes and subsequent student education outcomes under the proposed routine conditions and with the proposed sample.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** include a:

(i) Description of the intervention to be evaluated.

(ii) Description of the evidence from one previous study (that meets the Requirements and Recommendations for Efficacy and Replication studies).

(iii) For a Follow-up study, a description of the evidence from the original Effectiveness study.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Effectiveness work.

- Note the type of study proposed (Effectiveness or Follow-up) early in the Significance section.
- Describe the fully-developed intervention:
    - The intervention's components.

- Processes and materials (e.g., manuals, websites, training, coaching) that will be used to support implementation of the intervention.
- Evidence that the intervention is fully developed and ready for implementation in authentic education settings (e.g., all materials and implementation supports such as professional development are available, the intervention is being implemented).

- Describe the intervention's context:
  - Identify the target population and where implementation will take place.
  - Identify who the end users of the intervention are and describe how implementation will be carried out by them.
  - Describe the routine conditions under which the Effectiveness study will take place, including the following details:
    - The implementation of the intervention, making clear that it would be the same for any similar school or district intending to use the intervention.
    - The heterogeneity of the sample in comparison with that of the target population.
  - Explain how fidelity of implementation will be maintained in the Effectiveness study at least at the same levels found in the prior evaluations.
  - Identify the implementation supports to be used in this project compared to those used under the previous efficacy evaluations of the intervention.
- Clearly describe the initial theory of change for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change), along with theoretical justifications and empirical evidence that support it, keeping in mind that you may need to revise your theory over the course of the project.
  - Your theory of change should describe the component or components of the planned intervention that will foster better teacher and/or instructional personnel outcomes directly and student education outcomes indirectly through changed teacher and/or instructional personnel outcomes. A more complete theory of change could include further details such as the sample representing the target population, level of exposure to the components of the intervention, underlying processes contributing to the changes in relevant outcomes, key moderators (such as setting, context, teacher and/or student characteristics), and the specific measures used for the outcomes.

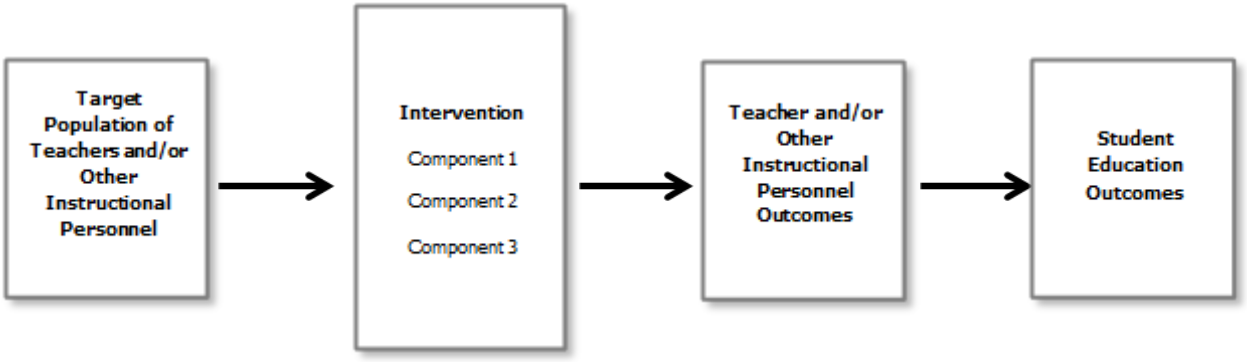

Figure 1. A diagram of a simple theory of change.

- When describing the prior study that provides evidence of the intervention's efficacy for an Effectiveness study, detail the conditions under which the intervention was implemented, the sample, research design, measures, fidelity of implementation, analysis, and results of the studies. In addition, describe the size and statistical significance of the effects that were found, indicate how any reported effect sizes were calculated, and discuss how the results show a practically important impact on teacher and/or instructional personnel outcomes and student outcomes large enough to justify an Effectiveness study.[30]
- For an Effectiveness Follow-up study, describe the existing evidence of the intervention's beneficial impact on teacher and/or instructional personnel outcomes and student outcomes from a previous evaluation (either completed or ongoing) that would meet the requirements of the Institute's Effectiveness goal. To this end, clearly describe the Effectiveness study, including the sample, research design, measures, analyses, and results (including the size and significance of the effects and their practical importance).
    - Attrition during the prior study and the ability to follow participants in subsequent years are key factors in the success of Follow-up studies. Show that you have access to research participants for successful follow up (e.g., letters of agreement from schools or districts to be included in Appendix D). Discuss attrition during the Effectiveness study (a CONSORT flow diagram is recommended[31]) and how it will be addressed in the Follow-up study.
- To provide a compelling rationale for testing the impact of the intervention on teacher and/or instructional personnel outcomes and subsequent student education outcomes in the proposed manner, address why the intervention is likely to produce better outcomes relative to current practice under routine conditions and the overall practical importance of the intervention (i.e., why education practitioners or policymakers should care about the results of the proposed evaluation).
    - For Follow-up studies, also discuss why those teachers and/or instructional personnel and students who were initially impacted would be expected to continue having beneficial impacts in subsequent years when they are no longer receiving an intervention.

[30] The prior studies are not required to have been from Institute-funded projects. Prior studies may have taken place under ideal or routine conditions.
[31] The Consort flow diagram that provides a structure for tracking participants at each study stage can be found at http://www.consort-statement.org/consort-statement/overview0/.

b. Research Plan – The purpose of this section is to describe the independent evaluation of the intervention. The requirements and recommendations for the Research Plan are the same as those for Efficacy/Replication except for single-case experimental design. For Effectiveness projects, single-case experimental designs are not allowed as your primary research design.

Effectiveness Research Plan

The requirements and recommendations for the Research Plan are the same as those for the Efficacy and Replication goal, except for using single-case experimental designs as your primary research design.

c. Personnel – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** include a description of the:

(i) Research team

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and other venues targeting policymakers and practitioners.

Personnel

Establish the independence of the key personnel carrying out evaluation activities.

- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out coordinated or integrated tasks.
- Show that the Principal Investigator and key personnel involved in the design of the evaluation, the assignment to treatment and comparison groups, and the data analysis did not and do not participate in the development or distribution of the intervention and do not have a financial interest in the intervention.
- The developer or distributor of the intervention may provide the typical implementation support they would provide under the routine adoption of the intervention (e.g., professional development). If included, discuss how their involvement will not jeopardize the objectivity of the research.
- If you have previously received an award from any source to evaluate an intervention, discuss any theoretical and practical contributions made by your previous work. By

demonstrating that your previous evaluation was successful, you provide a stronger case for your evaluation of another intervention.

d. Resources – The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** include a description of the resources to:

(i) Conduct the project

(ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Effectiveness work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
    - Include information about student, teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Effectiveness projects are to causally evaluate the impact of intervention on teacher and/or instructional personnel and resulting student outcomes. The Institute considers all types of findings from these projects to be potentially useful to researchers, policymakers, and practitioners.
    - Findings of a beneficial impact on teacher and/or instructional personnel and students could support the wider use of the intervention and the further adaptation of the intervention to conditions that are quite different.

- Findings of no impacts on teacher and/or instructional personnel outcomes and/or student outcomes (with or without impacts on more intermediate outcomes) are important for decisions regarding the ongoing use and wider dissemination of the intervention, further revision of the intervention and its implementation, and revision of the theory of change underlying the intervention.

- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project. These should include:
    - Publications in scientific, peer-reviewed journals and presentations at academic conferences
    - Reporting findings to any education agencies and schools that provided the project with data and data-collection opportunities
    - Publications and presentations in venues designed for policymakers, practitioners, and the general public including electronic venues (e.g., websites, webinars, podcasts, videos)

(2) Awards

An Effectiveness project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Effectiveness project is 5 years.** An application of this type proposing a project length of greater than 5 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum duration of an Effectiveness Follow-Up project is 3 years.** An application of this type proposing a project length of greater than 3 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Effectiveness project is $3,800,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
    - No more than 25 percent of the award may be allocated to the cost of the intervention. The cost of the intervention includes any materials, textbooks, software, computers, or training required to implement the intervention. When calculating the cost of the intervention, you should not include salaries for school or district staff who implement the intervention as part of their regular duties or funds allocated to pay teachers or other participants for time involved in completing questionnaires, surveys, or any other assessments that are part of the evaluation. Note the budgeted cost of the intervention and the percentage of the project's total funding represented by the cost of the intervention in your budget narrative.
- **The maximum award for an Effectiveness Follow-Up project is $1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
    - Grant funds should not be used for purchase or implementation of the intervention.

(3) Data Management Plan

Applications under the Effectiveness goal must include a Data Management Plan (DMP) of no more than five pages placed in *Appendix E*. **Applications that do not contain a DMP in Appendix E will be deemed nonresponsive to the Request for Applications and will not be accepted for review**. The items to be described in your DMP are the same as those listed for Efficacy/Replication.

Effectiveness Data Management Plan

The requirements and recommendations for the DMP are the same as those for the Efficacy/Replication goal.

5. Goal Five: Measurement

a) Purpose

The Measurement goal supports 1) the development of new assessments or refinement of existing assessments (Development/Refinement Projects) or 2) the validation of existing assessments for specific purposes, contexts, and populations (Validation Projects). Measurement projects can address a wide variety of measures of teachers and/or other instructional personnel, depending on the topic, such as behavioral measures, observational tools, informal assessments, and teacher and/or instructional personnel quality indicators. Measurement projects can address a range of purposes, such as measuring knowledge and skills, improving educator practice, evaluating educator job performance, or assessing the effectiveness of teachers and/or instructional personnel. **All measurement projects must link the assessment to teacher and/or instructional personnel outcomes and subsequent student education outcomes.**

Development/Refinement Projects will result in the following:

- A fully-developed version of the proposed assessment or refinement.
- A detailed description of the assessment or refinements and their intended use.
- A detailed description of the iterative development processes used to develop or refine the assessment, including field-testing procedures and processes for item revision.

All projects under the Measurement goal will result in the following:

- A well-specified assessment framework that provides the rationale for the assessment, the theoretical basis that underlies its design, and its validation activities.
- A detailed description of the validation activities.
- Evidence of the reliability and validity of the assessment for the specified purpose(s), populations, and contexts.

Assessment

Refers to any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test (AERA, 2014).

Validation

Refers to the use of a measure for a specific purpose and population.

Refinement

Includes changing existing assessments or changing the delivery of existing assessments in order to increase efficiency, improve measurement, improve accessibility, or provide accommodation for test takers.

b) Requirements and Recommendations

Applications under the Measurement goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for a Measurement project application **must** include four sections – Significance, Research Plan, Personnel, and Resources.

a. Significance – The purpose of this section is to explain why it is important either to develop/refine this assessment or to validate the assessment for a specific purpose and/or population.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include a:

(i) Description of the assessment to be developed/refined and/or validated.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Measurement work.

Development/Refinement Projects:

- Describe the specific need for developing or refining the assessment. Discuss how the results of this work will be important both to the field of special education research and to education practice and education stakeholders (e.g., practitioners and policymakers).
- Identify any current assessments that address this need and explain why they are not satisfactory. Contrast the new assessment with current typical assessment practice and its identified shortcomings. A detailed description of the assessment will clearly show that it has the potential to provide a better measure of the intended construct(s) because 1) it is sufficiently different from current assessments and does not suffer from the same shortcomings, 2) it has a strong theoretical or empirical basis, and 3) its implementation appears feasible for researchers, teachers and schools given their resource constraints (e.g., time, funds, personnel, schedules).

The assessment framework includes the following:

- Operational definition(s) of the construct(s) of measurement.
- Theoretical model showing how construct(s) are related to each other and/or external variables.
- Description of how the assessment provides evidence of the construct(s) identified in the rationale.
- Description of the processes for reasoning from assessment items and scores to the intended inferences regarding the construct(s) of measurement.
- Description of the intended use(s) and population(s) for which the assessment is meant to provide valid inferences.

Validation Projects:

- Describe the specific need for validating an existing assessment. Discuss how the results of this work will be important both to the field of special education research and to education practice and education stakeholders (e.g., practitioners, policymakers).

- Identify current validation evidence for this assessment and explain why it is not satisfactory for the proposed purpose(s).

All Measurement Projects:

- Describe the assessment framework and the fit between validation activities and the assessment framework.
- If you are applying for a second Measurement award to further develop or validate an assessment that was the focus of a previous Measurement award, justify the need for a second award and describe the results and outcomes of the previous award (e.g., the status of the assessment and its validation).

b. Research Plan – The purpose of this section is to describe the methodology you will use to develop, refine, and/or establish the validity of your assessment.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include a description of the:

(i) Methods to be used to develop/refine and/or validate an assessment

(ii) Data analysis procedures

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed measurement project.

Development/Refinement Projects:

- Describe the iterative procedures for developing, field testing, and selecting items to be used in the assessment and for obtaining representative responses to items.
- Describe the procedures for scoring the assessment, including justification for the scaling model that will be used to create scores. For example, if item response theory will be used to create scores, describe the model that will be applied.
- Describe the procedures for demonstrating adequate construct coverage and minimizing the influence of factors irrelevant to the construct.
- Provide the plans for establishing the fairness of the test for all members of the intended population (e.g., differential item functioning).
- Describe the procedures for determining the administrative procedures for conducting the assessment (e.g., mode of administration, inclusion/exclusion of individual test takers, accommodations, and whether make-ups or alternative administrative conditions will be allowed).
- Describe the plans for examining the feasibility of use of the assessment for the intended purpose.
- If alternate forms will be developed, describe the procedures for establishing the equivalency of the forms (i.e., horizontal equating).

- If the proposed assessment is used to measure growth, describe the procedures for establishing a developmental scale (i.e., vertical equating).

All Measurement Projects:

- Identify the theoretical and analytic steps that you will undertake to provide evidence that an assessment measures the intended construct for a given purpose and population.
- Describe the procedures for determining the reliability of the assessment for the intended purpose and population.
- Identify the types of validity evidence that will be used and provide justification for the adequacy of the selected types of evidence to support use of the assessment (e.g., predictive, concurrent, convergent, discriminant).
- As discussed in the General Requirements, you may propose to do a limited amount of laboratory research so long as it adheres to the sample and outcomes requirements outlined for the topic you select; however, applicants may not propose to conduct 100 percent of their research in the laboratory. A portion of the research must take place in the setting required for the chosen topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.
    - If you propose to do laboratory research, justify the amount that you are choosing to do and describe how it will provide relevant evidence for the validation or development/refinement of the assessment and how it will improve use of the assessment in authentic education settings. In addition, the materials and procedures should allow for generalizability to authentic education settings.
- Describe the statistical models and analyses that will be used (e.g., structural equation modeling; type of IRT model).

Timeline:

- Provide a timeline for each step in your project including such actions as measurement development (if applicable), sample selection and assignment, data collection, validation activities, data analysis, and dissemination.
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

c. Personnel – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include a description of the:

(i) Research team

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe a research team that collectively demonstrates the expertise in content domain(s), assessment development and administration, psychometrics, and statistical analysis as appropriate to support your scope of work. It will also be important to include staff with expertise working with teachers, in schools, or in other education delivery settings in which the proposed assessment is intended to be used.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out different tasks that must be coordinated and/or integrated.
- Key personnel may be from for-profit entities. However, if these entities are to be involved in the commercial production or distribution of the assessment being developed and/or validated, include a plan describing how their involvement will not jeopardize the objectivity of the research.
- If you have previously received a Measurement award and are applying for a grant to develop/refine and/or validate a new assessment, indicate the status of the previous assessment, its current use in education research, and/or the citing of your validation work in studies that use the assessment.

d. Resources – The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include a description of the resources to:

(i) Conduct the project

(ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Measurement work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.

- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
    - Include information about student, teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. The Institute expects that the dissemination of Development/Refinement Projects would clearly specify the validity evidence for the appropriate users. Validation Projects should be tied to wider use for an existing or new purpose and/or population.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.
- Findings that assessments are not validated for specific uses or populations should be disseminated to support decision-making regarding those assessments.

(2) Awards

A Measurement project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of a Measurement project is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for a Measurement project is $1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

PART IV: COMPETITION REGULATIONS AND REVIEW CRITERIA

A. FUNDING MECHANISMS AND RESTRICTIONS

1. Mechanism of Support

The Institute intends to award grants pursuant to this Request for Applications.

2. Funding Available

Although the Institute intends to support the research topics and goals described in this announcement, all awards pursuant to this Request for Applications are contingent upon the availability of funds and the receipt of meritorious applications. The Institute makes its awards to the highest quality applications, as determined through scientific peer review, regardless of topic or goal.

The size of the award depends on the research goal and scope of the project. Please attend to the duration and budget maximums set for each goal in Part III: Goal Descriptions and Requirements. If you request a project length longer than the maximum or a budget higher than the maximum, your application will be deemed nonresponsive and will not be reviewed.

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary data analysis only: 2 years	$600,000
	Primary data collection and analysis: 4 years	$1,400,000
Development & Innovation	4 years	$1,400,000
Efficacy & Replication	Efficacy & Replication: 4 years	$3,300,000
	Follow-up: 3 years	$1,100,000
	Retrospective: 3 years	$700,000
Effectiveness	Effectiveness: 5 years	$3,800,000
	Follow-up: 3 years	$1,400,000
Measurement	4 years	$1,400,000

3. Special Considerations for Budget Expenses

Indirect Cost Rate

When calculating your expenses for research conducted in field settings, you should apply your institution's federally negotiated off-campus indirect cost rate. Questions about indirect cost rates should be directed to the U.S. Department of Education's Indirect Cost Group http://www2.ed.gov/about/offices/list/ocfo/fipao/icgindex.html.

Institutions, both primary grantees and subawardees, not located in the territorial United States cannot charge indirect costs.

Meetings and Conferences

If you are requesting funds to cover expenses for hosting meetings or conferences, please note that there are statutory and regulatory requirements in determining whether costs are reasonable and necessary. Please refer to OMB's Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), 2 CFR, §200.432 Conferences.

In particular, federal grant funds cannot be used to pay for alcoholic beverages or entertainment, which includes costs for amusement, diversion, and social activities. In general, federal funds may not be used to pay for food. A grantee hosting a meeting or conference may not use grant funds to pay for food for conference attendees unless doing so is necessary to accomplish legitimate meeting or conference business. You may request funds to cover expenses for working meetings (e.g., working lunches); however, the Institute will determine whether these costs are allowable in keeping with the Uniform Guidance Cost Principles. Grantees are responsible for the proper use of their grant awards and may have to repay funds to the Department if they violate the rules for meeting- and conference-related expenses or other disallowed expenditures.

4. Program Authority

20 U.S.C. 9501 et seq., the "Education Sciences Reform Act of 2002," Title I of Public Law 107-279, November 5, 2002. This program is not subject to the intergovernmental review requirements of Executive Order 12372.

5. Applicable Regulations

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) codified at CFR Part 200. The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 77, 81, 82, 84, 86 (part 86 applies only to institutions of higher education), 97, 98, and 99. In addition 34 CFR part 75 is applicable, except for the provisions in 34 CFR 75.100, 75.101(b), 75.102, 75.103, 75.105, 75.109(a), 75.200, 75.201, 75.209, 75.210, 75.211, 75.217, 75.219, 75.220, 75.221, 75.222, and 75.230.

B. ADDITIONAL AWARD REQUIREMENTS

1. Public Availability of Data and Results

You must include a Data Management Plan (DMP) in Appendix E if you are submitting an Efficacy and Replication application or an Effectiveness application. The peer-review process will not include the DMP in the scoring of the scientific merit of the application. Instead, the Institute's Program Officers will be responsible for reviewing the completeness of the proposed DMP. The costs of the DMP can be covered by the grant and should be included in the budget and explained in the budget narrative.

Recipients of awards are expected to publish or otherwise make publicly available the results of the work supported through this program. Institute-funded investigators must submit final manuscripts resulting from research supported in whole or in part by the Institute to the Educational Resources Information Center (ERIC, http://eric.ed.gov) upon acceptance for publication. An author's final manuscript is defined as the final version accepted for journal publication and includes all graphics and supplemental materials that are associated with the article. The Institute will make the manuscript available to the public through ERIC no later than 12 months after the official date of publication. Investigators and their institutions are responsible for ensuring that any publishing or copyright agreements concerning submitted articles fully comply with this requirement.

2. Special Conditions on Grants

The Institute may impose special conditions on a grant pertinent to the proper implementation of key aspects of the proposed research design, or if the grantee is not financially stable, has a history of unsatisfactory performance, has an unsatisfactory financial or other management system, has not fulfilled the conditions of a prior grant, or is otherwise not responsible.

3. Demonstrating Access to Data and Authentic Education Settings

The research you propose to do under a specific topic and goal will most likely require that you have (or will obtain) access to authentic education settings (e.g., classrooms, schools, districts), secondary data sets, or studies currently under way. In such cases, you will need to provide evidence that you have access to these resources prior to receiving funding. Whenever possible, include letters of agreement in Appendix D from those who have responsibility for or access to the data or settings you wish to incorporate when you submit your application. Even in circumstances where you have included such letters with your application, **the Institute may require additional supporting evidence prior to the release of funds**. If you cannot provide such documentation, the Institute may not award the grant or may withhold funds.

You will need supporting evidence of partnership or access if you are:

- *Conducting research in or with authentic education settings* - If your application is being considered for funding based on scientific merit scores from the peer-review panel and your research relies on access to authentic education settings (e.g., schools), you will need to provide documentation that you have access to the necessary settings in order to receive the grant. This means that if you do not have permission to conduct the proposed project in the necessary number of settings at the time of application, you will need to provide documentation to the Institute indicating that you have successfully recruited the necessary number of settings for the proposed research before the full first-year costs will be awarded. If you recruited sufficient numbers of settings prior to the application, the Institute may ask you to provide documentation that the settings originally recruited for the application are still willing to partner in the research.

- *Using secondary data sets* - If your application is being considered for funding based on scientific merit scores from the peer-review panel and your research relies on access to secondary data sets (such as federally-collected data sets, state or district administrative data, or data collected by you or other researchers), you will need to provide documentation that you have access to the necessary data sets in order to receive the grant. This means that if you do not have permission to use the proposed data sets at the time of application, you must provide documentation to the Institute from the entity controlling the data set(s) before the grant will be awarded. This documentation must indicate that you have permission to use the data for the proposed research for the time period discussed in the application. If you obtained permission to use a proposed data set prior to submitting your application, the Institute may ask you to provide updated documentation indicating that you still have permission to use the data set to conduct the proposed research during the project period.

- *Building off of existing studies* - You may propose studies that piggyback onto an ongoing study (i.e., that require access to subjects and data from another study). In such cases, the Principal Investigator of the existing study should be one of the members of the research team applying for the grant to conduct the new project.

In addition to obtaining evidence of access, the Institute strongly advises applicants to establish a written agreement, within 3 months of receipt of an award, among all key collaborators and their institutions

(e.g., Principal and co-Principal Investigators) regarding roles, responsibilities, access to data, publication rights, and decision-making procedures.

C. OVERVIEW OF APPLICATION AND PEER REVIEW PROCESS

1. Submitting a Letter of Intent

The Institute strongly encourages potential applicants to submit a Letter of Intent by May 5, 2016. Letters of Intent are optional, non-binding, and not used in the peer review of a subsequent application. If you submit a Letter of Intent, one of the Institute's Program Officers will contact you regarding your proposed research to offer assistance. The Institute also uses the Letter of Intent to identify the expertise needed for the scientific peer-review panels and to secure a sufficient number of reviewers to handle the anticipated number of applications. Should you miss the deadline for submitting a Letter of Intent, you still may submit an application. If you miss the Letter of Intent deadline, the Institute asks that you inform the relevant Program Officer of your intention to submit an application.

Letters of Intent are submitted online at (https://iesreview.ed.gov). **Select the Letter of Intent form for the topic under which you plan to submit your application**. The online submission form contains fields for each of the seven content areas listed below. Use these fields to provide the requested information. The project description should be single-spaced and should not exceed one page (about 3,500 characters).

- Descriptive title
- Topic and goal that you will address
- Brief description of the proposed project
- Name, institutional affiliation, address, telephone number and e-mail address of the Principal Investigator and any co-Principal Investigators
- Name and institutional affiliation of any key collaborators and contractors
- Duration of the proposed project (attend to the duration maximums for each goal)
- Estimated total budget request (attend to the budget maximums for each goal)

2. Resubmissions and Multiple Submissions

If you intend to revise and resubmit an application that was submitted to one of the Institute's previous competitions but that was not funded, you must indicate on the SF-424 Form of the Application Package (Items 4a and 8) (see Part VI.E.1) that the FY 2017 application is a resubmission (Item 8) and include the application number of the previous application (an 11-character alphanumeric identifier beginning "R305" or "R324" entered in Item 4a). Prior reviews will be sent to this year's reviewers along with the resubmitted application. You must describe your response to the prior reviews using Appendix A (see Part V.D.3.). Revised and resubmitted applications will be reviewed according to this FY 2017 Request for Applications.

If you submitted a somewhat similar application in the past and did not receive an award but are submitting the current application as a new application, you should indicate on the application form that the FY 2017 application is a new application. Provide a rationale explaining why the FY 2017 application should be considered a new application rather than a revision using Appendix A (see Part V.D.3.). Without such an explanation, if the Institute determines that the current application is similar to a previously unfunded application, the Institute may send the reviews of the prior unfunded application to this year's reviewers along with the current application.

You may submit applications to more than one of the Institute's FY 2017 grant programs and to multiple topics within the Special Education Research Grants program. In addition, within a particular grant program or topic, you may submit multiple applications. However, you may submit a given application

only once for the FY 2017 grant competitions (i.e., you may not submit the same application or similar applications to multiple grant programs, multiple topics, or multiple times within the same topic). If you submit the same or similar applications, the Institute will determine whether and which applications will be accepted for review and/or will be eligible for funding.

3. Application Processing

Applications must be submitted electronically and received no later than 4:30:00 p.m., Washington, DC time on August 4, 2016 through the Internet using the software provided on the Grants.gov website: http://www.grants.gov/. You must follow the application procedures and submission requirements described in Part V Preparing Your Application and Part VI Submitting Your Application and the instructions in the User Guides provided by Grants.gov (http://www.grants.gov/web/grants/applicants/applicant-resources.html).

After receiving the applications, Institute staff will review each application for compliance and responsiveness to this Request for Applications. Applications that do not address specific requirements of this request will not be considered further.

Once you formally submit an application, Institute staff will not comment on its status until the award decisions are announced (no later than July 1, 2017) except with respect to issues of compliance and responsiveness. This communication will come through the Applicant Notification System (https://iesreview.ed.gov/).

Once an application has been submitted and the application deadline has passed, you may not submit additional materials for inclusion with your application.

4. Peer Review Process

The Institute will forward all applications that are compliant and responsive to this Request for Applications to be evaluated for scientific and technical merit. Scientific reviews are conducted in accordance with the review criteria stated below and the review procedures posted on the Institute's website, http://ies.ed.gov/director/sro/peer_review/application_review.asp, by a panel of scientists who have substantive and methodological expertise appropriate to the program of research and Request for Applications.

Each compliant and responsive application is assigned to one of the Institute's scientific review panels http://ies.ed.gov/director/sro/peer_review/reviewers.asp. At least two primary reviewers will complete written evaluations of the application, identifying strengths and weaknesses related to each of the review criteria. Primary reviewers will independently assign a score for each criterion, as well as an overall score, for each application they review. Based on the overall scores assigned by primary reviewers, the Institute calculates an average overall score for each application and prepares a preliminary rank order of applications before the full peer-review panel convenes to complete the review of applications.

The full panel will consider and score only those applications deemed to be the most competitive and to have the highest merit, as reflected by the preliminary rank order. A panel member may nominate for consideration by the full panel any application that he or she believes merits full panel review but that would not have been included in the full panel meeting based on its preliminary rank order.

5. Review Criteria for Scientific Merit

The purpose of Institute-supported research is to contribute to solving education problems and to provide reliable information about the education practices that support learning and improve academic achievement and access to education for all students. The Institute expects reviewers for all applications to assess the following aspects of an application in order to judge the likelihood that the proposed

research will have a substantial impact on the pursuit of that goal. Information pertinent to each of these criteria is described in Part III: Goal Descriptions and Requirements and in the section describing the relevant research grant topic within Part II: Topic Descriptions and Requirements.

a) Significance
Does the applicant provide a compelling rationale for the significance of the project as defined in the Significance section for the goal under which the applicant is submitting the application?

b) Research Plan
Does the applicant meet the methodological requirements and address the recommendations described in the Research Plan section for the goal under which the applicant is submitting the application?

c) Personnel
Does the description of the personnel make it apparent that the Principal Investigator and other key personnel possess appropriate training and experience and will commit sufficient time to competently implement the proposed research?

d) Resources
Does the applicant have the facilities, equipment, supplies, and other resources required to support the proposed activities? Do the commitments of each partner show support for the implementation and success of the project? Does the applicant have adequate capacity to disseminate results to a range of audiences in ways that are useful to them and reflective of the type of research done (e.g., the research goal)?

6. Award Decisions

The following will be considered in making award decisions for responsive and compliant applications:

- Scientific merit as determined by peer review,
- Performance and use of funds under a previous Federal award,
- Contribution to the overall program of research described in this Request for Applications,
- Availability of funds.

PART V: PREPARING YOUR APPLICATION

A. OVERVIEW

The application contents – individual forms and their PDF attachments – represent the body of an application to the Institute. **All applications for Institute funding must be self-contained**. As an example, reviewers are under no obligation to view an internet website if you include the site address (URL) in the application. In addition, **you may not submit additional materials directly to the Institute after the application package is submitted**.

B. GRANT APPLICATION PACKAGE

The Application Package for this competition (84-324A2017) provides all of the forms that you must complete and submit. The application form approved for use in the competition specified in this Request for Applications is the government-wide SF-424 Research and Related (R&R) Form (OMB Number 4040-0001).

1. Date Application Package is Available on Grants.gov

The Application Package will be available on http://www.grants.gov/ by May 5, 2016.

2. How to Download the Correct Application Package

To find the correct downloadable Application Package, you must first search by the CFDA number for this research competition without the alpha suffix. To submit an application to the Special Education Research Grants program, you must search on: CFDA 84.324.

The Grants.gov search on CFDA 84.324 will yield more than one Application Package. For the Special Education Research Grants program, you must download the Application Package marked:

- Special Education Research CFDA 84.324A

You must download the Application Package that is designated for this grant competition. If you use a different Application Package, even if it is for another Institute competition, the application will be submitted to the wrong competition. Applications submitted using the incorrect application package run the risk of not being reviewed according to the requirements and recommendations for the Special Education Research Grants competition.

See Part VI: Submitting Your Application, for a complete description of the forms that make up the application package and directions for filling out these forms.

C. GENERAL FORMATTING

For a complete application, you must submit the following as individual attachments to the R&R forms that are contained in the application package for this competition in Adobe Portable Document Format (PDF):

- Project Summary/Abstract;
- Project Narrative and, if applicable, Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E (all together as one PDF file);
- Bibliography and References Cited;
- Research on Human Subjects Narrative (i.e., Exempt or Non-Exempt Research Narrative);
- A Biographical Sketch for each senior/key person, including Current & Pending Support for Senior/Key Personnel;

- A Narrative Budget Justification for the total Project budget; and
- Subaward Budget(s) that has (have) been extracted from the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form, if applicable.

Information about the formatting requirements for all of these documents except the Subaward budget attachment (see Part VI.E.6.) is provided below.

1. Page and Margin Specifications

For all Institute research grant applications, a "page" is 8.5 in. x 11 in., on one side only, with 1 inch margins at the top, bottom, and both sides.

2. Page Numbering

Add page numbers using the header or footer function, and place them at the bottom or upper right corner for ease of reading.

3. Spacing

Text must be single spaced.

4. Type Size (Font Size)

Type must conform to the following three requirements:

- The height of the letters must not be smaller than a type size of 12 point.
- Type density, including characters and spaces, must be no more than 15 characters per inch (cpi). For proportional spacing, the average for any representative section of text must not exceed 15 cpi.
- Type size must yield no more than six lines of type within a vertical inch.

You should check the type size using a standard device for measuring type size, rather than relying on the font selected for a particular word processing/printer combination. The type size used must conform to all three requirements. Small type size makes it difficult for reviewers to read the application; consequently, the use of small type will be grounds for the Institute to return the application without peer review.

Adherence to type size and line spacing requirements is necessary so that no applicant will have an unfair advantage, by using small type or by providing more text in their applications. These requirements apply to the PDF file as submitted. As a practical matter, if you use a 12-point Times New Roman font without compressing, kerning, condensing or other alterations, the application will typically meet these requirements.

5. Graphs, Diagrams, and Tables

You are encouraged to use black and white in graphs, diagrams, tables, and charts. If color is used, you should ensure that the material reproduces well when printed or photocopied in black and white.

Text in figures, charts, and tables, including legends, may be in a type size smaller than 12 point but must be readily legible.

D. PDF ATTACHMENTS

1. Project Summary/Abstract

a) Submission

You must submit the project summary/abstract as a separate PDF attachment at Item 7 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

The project summary/abstract is limited to one single-spaced page.

c) Content

The project summary/abstract should include the following:

- **Title** of the project.
- The **topic and goal** to which you are applying (e.g., Mathematics and Science Education, Development and Innovation goal).
- **Purpose**: A brief description of the purpose of the project (e.g., to develop and document the feasibility of an intervention) and its significance for improving teacher and/or other instructional personnel outcomes and subsequent student education outcomes.
- **Setting**: A brief description of the location (e.g., state or states) where the research will take place and other important characteristics of the locale (e.g., urban/suburban/rural).
- **Population/Sample**: A brief description of the sample that will be involved in the study, including number of participants (e.g., schools, teachers, students), its composition (e.g., age or grade level, disability, race/ethnicity, SES) and the population the sample is intended to represent.
- **Intervention/Assessment**: If applicable, a brief description of the intervention or assessment to be developed, evaluated, or validated.
- **Control Condition**: If applicable, a brief description of the control or comparison condition (i.e., who the participants in the control condition are and what they will experience).
- **Research Design and Methods**: Briefly describe the major features of the design and methodology to be used (e.g., randomized controlled trial, quasi-experimental design, mixed method design; iterative design process).
- **Key Measures:** A brief description of key measures and outcomes.
- **Data Analytic Strategy**: A brief description of the data analytic strategy that will be used to answer research questions.

Please see http://ies.ed.gov/ncser/projects for examples of the content to be included in your project summary/abstract.

2. Project Narrative

a) Submission

You must submit the project narrative as a separate PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

The project narrative is limited to 25 pages. **If the narrative exceeds this page limit, the Institute will remove any pages after the 25th page of the narrative**.

To help reviewers locate information and conduct the highest quality review, you should write a concise and easy to read narrative, with pages numbered consecutively using the header or footer function to place numbers at the top or bottom right-hand corner.

c) Format for citing references in text

To ensure that all applicants have the same amount of available space in which to describe their projects in the project narrative, use the author-date style of citation (e.g., James, 2004), such as that described in the Publication Manual of the American Psychological Association, 6th Ed. (American Psychological Association, 2009).

d) Content

Your project narrative **must** include four sections in order to be compliant with the requirements of this Request for Applications: (1) Significance, (2) Research Plan, (3) Personnel, and (4) Resources. Information to be included in each of these sections is detailed in Part III: Goal Descriptions and Requirements. **The information you include in each of these four sections will provide the majority of the information on which reviewers will evaluate the application**.

3. Appendix A (Required for Resubmissions)

a) Submission

If your application is a resubmission, you must include Appendix A at the end of the project narrative. If your application is one that you consider to be new but that is similar to a previous application, you should include Appendix A. Include Appendix A after the project narrative as part of the same PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

Appendix A is limited to 3 pages.

c) Content

Appendix A is required if you are resubmitting an application. Use Appendix A to describe how the revised application is responsive to prior reviewer comments.

If you have submitted a somewhat similar application in the past but are submitting the current application as a new application, you should use Appendix A to provide a rationale explaining why the current application should be considered a "new" application rather than a "resubmitted" application.

These are the only materials that may be included in Appendix A; all other materials will be removed prior to review of the application.

4. Appendix B (Optional)

a) Submission

If you choose to have an Appendix B, you must include it at the end of the project narrative, following Appendix A (if included), and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

Appendix B is limited to 15 pages.

c) Content

You may include figures, charts (e.g., a timeline for your research project), or tables that supplement the project narrative as well as examples of items from measures (e.g., tests, surveys, observation and interview protocols) to be used in the project in Appendix B. These are the only materials that may be included in Appendix B; all other materials will be removed prior to review of the application. You **must** include narrative text that describes your project in the 25-page project narrative, not in Appendix B.

5. Appendix C (Optional)

a) Submission

If you choose to have an Appendix C, you must include it at the end of the project narrative, following Appendix B (if no Appendix B is included, then Appendix C should follow Appendix A if it is included) and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

Appendix C is limited to 10 pages.

c) Content

In Appendix C, if you are proposing to explore, develop, evaluate, or validate an intervention or assessment you may include examples of curriculum material, computer screen shots, assessment items, or other materials used in the intervention or assessment to be explored, developed, evaluated, or validated. These are the only materials that may be included in Appendix C; all other materials will be removed prior to review of the application. You should include narrative text describing these materials in the 25-page project narrative, not in Appendix C.

6. Appendix D (Optional)

a) Submission

If you choose to have an Appendix D, you must include it at the end of the project narrative, following Appendix C (if no Appendix C is included, then Appendix D should follow Appendix B if it is included, or Appendix A) and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

Appendix D does not have a page limit.

c) Content

Include in Appendix D the letters of agreement from partners (e.g., schools and districts), data sources (e.g., state agencies holding administrative data), and consultants. Ensure that the letters reproduce well so that reviewers can easily read them. Do not reduce the size of the letters. See Part VI.D.4. Attaching Files for guidance regarding the size of file attachments.

Letters of agreement should include enough information to make it clear that the author of the letter understands the nature of the commitment of time, space, and resources to the research project that will be required if the application is funded. A common reason for projects to fail is loss of participating schools and districts. Letters of agreement regarding the provision of data should make it clear that the author of the letter will provide the data described in the application for use in the proposed research and in time to meet the proposed schedule.

These are the only materials that may be included in Appendix D; all other materials will be removed prior to review of the application.

7. Appendix E (Required for Efficacy/Replication and Effectiveness Applications)

a) Submission

If you are applying under Goal Three: Efficacy and Replication or Goal Four: Effectiveness, include Appendix E at the end of the project narrative, following the other Appendices included, and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information). If you are applying under any other research goal, do not include Appendix E.

b) Page limitations

Appendix E is limited to 5 pages.

c) Content

Include in Appendix E your Data Management Plan (DMP). The content of the DMP is discussed under (3) Data Management Plan in Goal Three: Efficacy and Replication. These are the only materials that may be included in Appendix E; all other materials will be removed prior to review of the application.

8. Bibliography and References Cited

a) Submission

You must submit this section as a separate PDF attachment at Item 9 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

The Bibliography and References Cited does not have a page limit.

c) Content

You should include complete citations, including the names of all authors (in the same sequence in which they appear in the publication), titles (e.g., article and journal, chapter and book, book), page numbers, and year of publication for literature cited in the project narrative.

9. Research on Human Subjects Narrative

a) Submission

The human subjects narrative must be submitted as a PDF attachment at Item 12 of the Other Project Information form (see Part VI.E.4: Research & Related Other Project Information).

b) Page limitations

The human subjects narrative does not have a page limit.

c) Content

The human subjects narrative should address the information specified by the U.S. Department of Education's Regulations for the Protection of Human Subjects (see http://www2.ed.gov/about/offices/list/ocfo/humansub.html for additional information).

Exempt Research on Human Subjects Narrative

Provide an "exempt" narrative if you checked "yes" on Item 1 of the Research & Related Other Project Information form (see Part VI.E.4: Research & Related Other Project Information). The narrative must contain sufficient information about the involvement of human subjects in the proposed research to allow a determination by the Department that the designated exemption(s)

are appropriate. The six categories of research that qualify for exemption from coverage by the regulations are described on the Department's website http://www2.ed.gov/policy/fund/guid/humansub/overview.html.

Non-exempt Research on Human Subjects Narrative

If some or all of the planned research activities are covered by (not exempt from) the Human Subjects Regulations and you checked "no" on Item 1 of the Research & Related Other Project Information form (see Part VI.E.4: Research & Related Other Project Information), provide a "nonexempt research" narrative. The nonexempt narrative should describe the following: the characteristics of the subject population; the data to be collected from human subjects; recruitment and consent procedures; any potential risks; planned procedures for protecting against or minimizing potential risks; the importance of the knowledge to be gained relative to potential risks; and any other sites where human subjects are involved.

Note that the U.S. Department of Education does not require certification of Institutional Review Board approval at the time you submit your application. However, if an application that involves non-exempt human subjects research is recommended/selected for funding, the designated U.S. Department of Education official will request that you obtain and send the certification to the Department within 30 days after the formal request.

10. Biographical Sketches for Senior/Key Personnel

a) Submission

Each sketch will be submitted as a separate PDF attachment and attached to the Research & Related Senior/Key Person Profile (Expanded) form (see Part VI.E.2: Research & Related Senior/Key Person Profile (Expanded)). The Institute encourages you to use the biosketch template available through SciENcv or you may develop your own biosketch format.

b) Page limitations

Each biographical sketch is limited to five pages which includes Current and Pending Support.

c) Content

Provide a biographical sketch for the Principal Investigator, each Co-Principal Investigator, and other key personnel that includes information sufficient to demonstrate that key personnel possess training and expertise commensurate with their specified duties on the proposed project (e.g., publications, grants, and relevant research experience). If you'd like, you may also include biographical sketches for consultants (this form will allow for up to 40 biographical sketches in total).

Provide a list of current and pending grants for the Principal Investigator, each Co-Principal Investigator, and other key personnel, along with the proportion of his/her time, expressed as percent effort over a 12-month calendar year, allocated to each project. Include the proposed project as one of his/her pending grants in this list. If the total 12-month calendar year percent effort across all current and pending projects exceeds 100 percent, you must explain how time will be allocated if all pending applications are successful in the Narrative Budget Justification. If you use SciENcv, the information on current and pending support will be entered into the biosketch template. If you use your own format, you will need to provide this information in a separate table.

11. Narrative Budget Justification

a) Submission

The narrative budget justification must be submitted as a PDF attachment at Section K of the first project period of the Research & Related Budget (SF 424) Sections A & B; C, D, & E; and F-K form for the Project (see Part VI.E.5 Research & Related Budget (Total Federal + Non-Federal) - Sections A & B; C, D, & E; and F-K). For grant submissions with a subaward(s), a separate narrative budget justification for each subaward must be submitted and attached at Section K of the Research & Related Budget (SF 424) for the specific Subaward/Consortium that has been extracted and attached using the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form (see Part VI.E.6).

b) Page limitations

The narrative budget justification does not have a page limit.

c) Content

A narrative budget justification must be submitted for the Project budget, and a separate narrative budget justification must be submitted for any subaward budgets included in the application. Each narrative budget justification should provide sufficient detail to allow reviewers to judge whether reasonable costs have been attributed to the project and its subawards, if applicable. The budget justification should correspond to the itemized breakdown of project costs that is provided in the corresponding Research & Related Budget (SF 424) Sections A & B; C, D, & E; and F-K form for each year of the project. The narrative should include the time commitments for key personnel expressed as annual percent effort (i.e., calculated over a 12-month period) and brief descriptions of the responsibilities of key personnel. For consultants, the narrative should include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs. A justification for equipment purchases, supplies, travel (including information regarding number of days of travel, mode of transportation, per diem rates, number of travelers, etc.), and other related project costs should also be provided in the budget narrative for each project year outlined in the Research & Related Budget (SF 424).

d) Indirect cost rate

You must use your institution's federally negotiated indirect cost rate see Part IV.A.3: Special Considerations for Budget Expenses). When calculating your indirect costs on expenses for research conducted in field settings, you should apply your institution's federally negotiated off-campus indirect cost rate.

If your institution does not have a federally negotiated indirect cost rate you should consult a member of the Indirect Cost Group (ICG) in the U.S. Department of Education's Office of the Chief Financial Officer http://www2.ed.gov/about/offices/list/ocfo/fipao/icgreps.html to help you estimate the indirect cost rate to put in your application.

PART VI: SUBMITTING YOUR APPLICATION

This part of the RFA describes important submission procedures you need to be aware of to ensure your application is received on time (no later than 4:30:00 p.m. Washington, DC time on August 4, 2016) and accepted by the Institute. Any questions that you may have about electronic submission via Grants.gov should first be addressed to the Grants.gov Contact Center at support@grants.gov, http://www.grants.gov/web/grants/about/contact-us.html, or call 1-800-518-4726.

Additional help with submitting an application electronically through the Grants.gov website is available at http://www.grants.gov/web/grants/applicants/applicant-resources.html. The Institute also offers webinars on the application submission process http://ies.ed.gov/funding/webinars/index.asp.

A. MANDATORY ELECTRONIC SUBMISSION OF APPLICATIONS AND DEADLINE

Applications must be submitted electronically through the Internet using the software and application package provided on the Grants.gov website: http://www.grants.gov/. Applications must be received (fully uploaded and processed by Grants.gov) no later than 4:30:00 p.m. Washington, DC time on August 4, 2016. Applications received by Grants.gov after the 4:30:00 p.m. application deadline will be considered late and will not be sent forward for scientific peer review.

Electronic submission is required unless you qualify for one of the exceptions to the electronic submission requirement *and* submit, no later than 2 weeks before the application deadline date, a written statement to the Department that you qualify for one of these exceptions. A description of the Allowable Exceptions to Electronic Submissions is provided at the end of this document.

Please consider submitting your application ahead of the deadline date (the Institute recommends 3 to 4 days in advance of the closing date and time) to avoid running the risk of a late submission that will not be reviewed. **The Institute does not accept late applications**.

B. REGISTER ON GRANTS.GOV

To submit an application through Grants.gov, your institution must be registered with Grants.gov (http://www.grants.gov/web/grants/register.html).

Grants.gov registration involves many steps including prior registration in the System for Award Management (SAM: formerly known as the Central Contractor Registry or CCR) at http://www.sam.gov. Grants.gov recommends that your institution begin the registration process at least 4 weeks prior to the application deadline date.

1. Register Early

Registration involves multiple steps (described below) and takes at least 3 to 5 business days, or as long as 4 weeks, to complete. You must complete all registration steps to allow a successful application submission via Grants.gov. You may begin working on your application while completing the registration process, but you will not be permitted to submit your application until all of the registration steps are complete.

2. How to Register

- Choose “Organization Applicant” for the type of registration.
- Complete the DUNS OR DUNS+4 Number field.

- If your organization does not already have a DUNS Number, you can request one online by using the form at the Dun & Bradstreet website http://fedgov.dnb.com/webform or by phone (866-705-5711).

- To submit successfully, you must provide the DUNS number on your application that was used when you registered as an Authorized Organization Representative (AOR) on Grants.gov. This DUNS number is typically the same number used when your organization registered with the SAM. **If you don't enter the same DUNS number as the DUNS you registered with, Grants.gov will reject your application**.

- Register with the System for Award Management (SAM): http://www.sam.gov.

  - You can learn more about the SAM and the registration process for grant applicants in the SAM user guide: https://www.sam.gov/sam/transcript/Quick_Guide_for_Grants_Registrations_v1.7.pdf

    For further assistance, please consult the tip sheet that the U.S. Department of Education has prepared for help with the SAM system: http://www2.ed.gov/fund/grant/apply/sam-faqs.html.

  - Registration with the SAM may take a week to complete, but could take as many as several weeks to complete, depending on the completeness and accuracy of the data entered into the SAM database by an applicant. The SAM registration must be updated annually.

  - Once your SAM registration is active, it will take 24 to 48 hours for the information to be available in Grants.gov. You will only be able to submit your application via Grants.gov once the SAM information is available in Grants.gov.

- Create your Username & Password.

  - Complete your AOR profile on Grants.gov and create your username and password. You will need to use your organization's DUNS Number to complete this step https://apply07.grants.gov/apply/OrcRegister.

- AOR Authorization

  - The E-Business Point of Contact (E-Biz POC) at your organization must log in to Grants.gov to confirm you as an AOR. Please note that there can be more than one AOR for your organization. In some cases the E-Biz POC is also the AOR for an organization.

C. SUBMISSION AND SUBMISSION VERIFICATION

1. Submit Early

The Institute strongly recommends that you not wait until the deadline date to submit an application. Grants.gov will put a date/time stamp on the application and then process it after it is fully uploaded. **The time it takes to upload an application will vary depending on a number of factors including the size of the application and the speed of your internet connection.** If Grants.gov rejects your application due to errors in the application package, you will need to resubmit successfully before 4:30:00 p.m. Washington, DC time on the deadline date as determined by Grants.gov. As an example, if you begin the submission process at 4:00:00 p.m. Washington, DC time on the deadline date,

and Grants.gov rejects the application at 4:15:00 p.m. Washington, DC time, there may not be enough time for you to locate the error that caused the submission to be rejected, correct it, and then attempt to submit the application again before the 4:30:00 p.m. Washington, DC time deadline. **You are strongly encouraged to begin the submission process at least three to four days before the deadline date to ensure a successful, on-time submission.**

2. Verify Submission is OK

The Institute urges you to verify that Grants.gov and the Institute have received the application on time and that it was validated successfully. To see the date and time that your application was received by Grants.gov, you need to log in to Grants.gov and click on the "Track My Application" link http://www.grants.gov/web/grants/applicants/track-my-application.html. For a successful submission, the date/time received should be no later than 4:30:00 p.m. Washington, DC time on the deadline date, AND the application status should be: (1) Validated (i.e., no errors in submission), (2) Received by Agency (i.e., Grants.gov has transmitted the submission to the U.S. Department of Education), or (3) Agency Tracking Number Assigned (the U.S. Department of Education has assigned a unique PR/Award Number to the application).

Note: If the date/time received is later than 4:30:00 p.m. Washington, DC time on the deadline date, the application is late. If the application has a status of "Received" it is still awaiting validation by Grants.gov. Once validation is complete, the status will change either to "Validated" or "Rejected with Errors." If the status is "Rejected with Errors," the application has not been received successfully. Grants.gov provides information on reasons why applications may be rejected in its Frequently Asked Questions (FAQ) page.

- Grants.gov FAQ
  http://www.grants.gov/web/grants/applicants/applicant-faqs.html

You will receive four emails regarding the status of your submission; the first three will come from Grants.gov and the fourth will come from the U.S. Department of Education. Within 2 days of submitting a grant application to Grants.gov, you will receive three emails from Grants.gov:

- The first email message will confirm receipt of the application by the Grants.gov system and will provide you with an application tracking number beginning with the word "GRANT", for example GRANT00234567. You can use this number to track your application on Grants.gov using the "Track My Application" link http://www.grants.gov/web/grants/applicants/track-my-application.html before it is transmitted to the U.S. Department of Education.

- The second email message will indicate that the application EITHER has been successfully validated by the Grants.gov system prior to transmission to the U.S. Department of Education OR has been rejected due to errors, in which case it will not be transmitted to the Department.

- The third email message will indicate that the U.S. Department of Education has confirmed retrieval of the application from Grants.gov once it has been validated.

If the second email message indicates that the application, as identified by its unique application tracking number, is valid and the time of receipt was no later than 4:30:00 p.m. Washington, DC time then the application submission is successful and on time.

Note: You should not rely solely on e-mail to confirm whether an application has been received on time and validated successfully. The Institute urges you to use the "Track My Application" link on Grants.gov to verify on-time, valid submissions in addition to the confirmation emails.
http://www.grants.gov/web/grants/applicants/track-my-application.html

Once Grants.gov validates the application and transmits it to the U.S. Department of Education, you will receive an email from the U.S. Department of Education.

- This fourth email message will indicate that the application has been assigned a PR/Award number unique to the application beginning with the letter R, followed by the section of the CFDA number unique to that research competition (i.e., 324A), the fiscal year for the submission (i.e., 17 for fiscal year 2017), and finally four digits unique to the application, for example R324A17XXXX. If the application was received after the closing date/time, this email will also indicate that the application is late and will not be given further consideration.

Note: The Institute strongly recommends that you begin the submission process at least 3 to 4 days in advance of the closing date to allow for a successful and timely submission.

3. Late Applications

If your application is submitted after 4:30:00 p.m. Washington, DC time on the application deadline date your application will not be accepted and will not be reviewed. **The Institute does not accept late applications.**

Late applications are often the result of one or more common submission problems that could not be resolved because there was not enough time to do so before the application deadline. Grants.gov has several resources that can help you resolve problems such as these.

- http://www.grants.gov/web/grants/applicants/applicant-faqs.html
- http://www.grants.gov/web/grants/applicants/encountering-error-messages.html

If after consulting these resources you still experience problems submitting an application through Grants.gov, contact the Grants.gov Support Desk (support@grants.gov, http://www.grants.gov/web/grants/about/contact-us.html, 1-800-518-4726) to obtain a Case Number (e.g., 1-12345678) that you should keep as a record of the problem(s) you experienced. If the Grants.gov Support Desk determines that a technical problem occurred with the Grants.gov system, and determines that the problem affected your ability to submit the application by the submission deadline, you may petition the Institute to review your application (email the relevant program officer with the Grants.gov case number and related information). However, if Grants.gov determines that the problem you experienced is one of those identified by Grants.gov as common application errors do not petition the Institute to have your case reviewed because these common submission problems are not grounds for petition. **The Institute will not accept an application that was late due to failure to follow the submission guidelines provided by Grants.gov and summarized in this RFA**.

D. TIPS FOR WORKING WITH GRANTS.GOV

The Institute strongly encourages you to use the "Check Application for Errors" button at the top of the grant application package to identify errors or missing required information that can prevent an application from being processed and sent forward for review.

Note: You must click the "Save and Submit" button at the top of the application package to upload the application to the Grants.gov website. The "Save and Submit" button will become active only after you have used the "Check Package for Errors" button and then clicked the "Save" button. Once the "Save and Submit" button is clicked, you will need to enter the user name and password that were created upon registration with Grants.gov.

1. Working Offline

When you download the application package from Grants.gov, you will be working offline and saving data on your computer. You will need to log in to Grants.gov to upload the completed application package and submit the application.

2. Connecting to the Internet

- Using a dial-up connection to upload and submit an application can take significantly longer than when connected to the Internet with a high-speed connection to the internet (e.g., cable modem/DSL/T1). Although times will vary depending upon the size of the application, it can take a few minutes to a few hours to complete the grant submission using a dial-up connection.

- Browser Support: Grants.gov is a Custom Java Application that uses standard web-browsers as the client. Grants.gov leverages the latest web technologies such as Ajax which relies extensively on JavaScript, HTML, and CSS. Grants.gov recommends you use the most up-to-date web browser to ensure an on-time submission.

3. Software Requirements

You will need Adobe software to read and complete the application forms for submission through Grants.gov. Grants.gov supports Adobe Reader version 9-11 http://www.grants.gov/web/grants/applicants/adobe-software-compatibility.html).

4. Attaching Files

The forms included in the application package provide the means for you to attach Adobe Portable Document Format (PDF) files. **You must attach read-only, non-modifiable PDF files**; any other file attachment will cause your application to be rejected by Grants.gov.

If you include scanned documents as part of a PDF file (e.g., Letters of Agreement in Appendix D), scan them at the lowest resolution to minimize the size of the file and expedite the upload process. PDF files that contain graphics and/or scanned material can greatly increase the size of the file attachments and can result in difficulties opening the files. The average discretionary grant application package totals 1 to 2 MB; therefore, **check the total size of your application package before you attempt to submit it.** Very large application packages can take a long time to upload, putting the application at risk of being received late and therefore not accepted by the Institute.

PDF files included in the application **must** be:

- **In a read-only, non-modifiable format.**
- **Individual files** (attachments that contain files within a file, such as PDF Portfolio files, or an interactive or fillable PDF file will not be read).
- **Not password protected.**
- **Given a file name that:**
    - **Is unique -** Grants.gov cannot process an application that includes two or more file attachments that have the same name.
    - **Is no more than 50 characters.**
    - **Contains no special characters (e.g., &,–,*,%,/,#), blank spaces, periods, or accent marks in the file name** (you may use an underscore to indicate word separation in file names such as “my_Attached_File.pdf”).

Please note that if these guidelines are not followed, your application will be rejected by Grants.gov and not forwarded to the U.S. Department of Education.

E. REQUIRED RESEARCH & RELATED (R&R) FORMS AND OTHER FORMS

You must complete and submit the R&R forms described below. All of these forms are provided in the application package for this competition (84-324A2017). Please note that fields marked by an asterisk and highlighted in yellow and outlined in red on these forms are required fields and must be completed to ensure a successful submission.

Note: Although not required fields, Items 4a (Federal Identifier) and b (Agency Routing Number) on the Application for Federal Assistance SF 424 (R&R) form provide critical information to the Institute and should be filled out for an application to this research grant competition.

1. Application for Federal Assistance SF 424 (R&R)

This form asks for general information about the applicant, including but not limited to the following: contact information; an Employer Identification Number (EIN); a DUNS number; a descriptive title for the project; an indication of the project topic and the appropriate goal; Principal Investigator contact information; start and end dates for the project; congressional district; total estimated project funding; and Authorized Representative contact information.

Because information on this form populates selected fields on some of the other forms described below, you should complete this form first. This form allows you to attach a cover letter; however, the Institute does not require a cover letter so you should not attach one here.

Provide the requested information using the drop down menus when available. Guidance for completing selected items follows.

- Item 1

  Type of Submission. Select either "Application" or "Changed/Corrected Application." "Changed/Corrected Application" should only be selected in the event that you need to submit an updated version of an already submitted application (e.g., you realized you left something out of the first application submitted). The Institute does not require Pre-applications for its grant competitions.

- Item 2

  Date Submitted. Enter the date the application is submitted to the Institute.

  Applicant Identifier. Leave this blank.

- Item 3

  Date Received by State and State Application Identifier. Leave these items blank.

- Item 4

  Note: This item provides important information that is used by the Institute to screen applications for responsiveness to the competition requirements and for assignment to the appropriate scientific peer-review panel. **It is critical that you complete this information**

completely and accurately or the application may be rejected as nonresponsive or assigned inaccurately for scientific review of merit.

- Item 4a: Federal Identifier. **Enter information in this field if this is a Resubmission**. If this application is a revision of an application that was submitted to an Institute grant competition in a prior fiscal year (e.g., FY 2016) that received reviewer feedback, then this application is considered a "Resubmission" (see Item 8 Type of Application). You should **enter the PR/Award number that was assigned to the prior submission (e.g., R324A16XXXX or R305A16XXXX) in this field**.

- Agency Routing Number. **Enter the code for the topic and goal that the application addresses in this field**. Applications to the Special Education Research (CFDA 84.324A) program must be submitted to a particular topic and goal (see Part II: Topic Requirements and Part III: Goal Descriptions and Requirements for additional information).

Topics	Codes
Autism Spectrum Disorders	NCSER-ASD
Cognition and Student Learning in Special Education	NCSER-CASL
Early Intervention and Early Learning in Special Education	NCSER-EIEL
Families of Children with Disabilities	NCSER-Fam
Mathematics and Science Education	NCSER-MS
Professional Development for Teachers and Related Services Providers	NCSER-PD
Reading, Writing, and Language Development	NCSER-RWL
Social and Behavioral Outcomes to Support Learning	NCSER-SocBeh
Special Education Policy, Finance, and Systems	NCSER-SYS
Technology for Special Education	NCSER-EdTech
Transition Outcomes for Secondary Students with Disabilities	NCSER-Trans

Goals	Codes
Goal 1: Exploration Projects	Exploration
Goal 2: Development and Innovation Projects	Development
Goal 3: Efficacy and Replication Projects	Efficacy
Goal 4: Effectiveness Projects	Effectiveness
Goal 5: Measurement Projects	Measurement

Example: If your application is a Development and Innovation project under the Autism Spectrum Disorders topic, enter the codes "NCSER-ASD" and "Development."

It is critical that you use the appropriate codes in this field and that the codes shown in this field agree with the information included in the application abstract. Indicating the correct code facilitates the appropriate processing and review of the application. Failure to do so may result in delays to processing and puts your application at risk for being identified as nonresponsive and not considered for further review.

- Item 4c: Previous Grants.gov Tracking ID. If you are submitting a "Changed/Corrected" application (see Item 1) to correct an error, enter the Grants.gov Tracking Number associated with the application that was already submitted through Grants.gov. Note: If you need to correct an error and submit a "Changed/Corrected" application, contact the Program Officer listed on the application package and provide the Grants.gov tracking numbers associated with both applications (the one with the error and the one that has been corrected) and identify which one should be reviewed by the Institute.

- Item 5

  Applicant Information. Enter all of the information requested, including the legal name of the applicant, the name of the primary organizational unit (e.g., school, department, division, etc.) that will undertake the activity, and the address, including the county and the 9-digit ZIP/Postal Code of the primary performance site (i.e., the Applicant institution) location. This field is required if the Project Performance Site is located in the United States. The field for "Country" is pre-populated with "USA: UNITED STATES." For applicants located in another country, contact the Program Officer (see Part II Topic Requirements or the list of Program Officers in Part VI.H) before submitting the application. Use the drop down menus where they are provided.

  Organizational DUNS. Enter the DUNS or DUNS+4 number of the applicant organization. A **Data Universal Numbering System (DUNS)** number is a unique 9-character identification number provided by the commercial company Dun & Bradstreet (D&B) to identify organizations. If your institution does not have a DUNS number and therefore needs to register for one, a DUNS number can be obtained through the Dun & Bradstreet website http://fedgov.dnb.com/webform/displayHomePage.do.

  Note: The DUNS number provided on this form must be the same DUNS number used to register on Grants.gov (and the same as the DUNS number used when registering with the SAM). **If the DUNS number used in the application is not the same as the DUNS number used to register with Grants.gov, the application will be rejected with errors by Grants.gov**.

  Person to Be Contacted on Matters Involving this Application. Enter all of the information requested, including the name, telephone and fax numbers, and email address of the person to be contacted on matters involving this application. The role of this person is primarily for communication purposes on the budgetary aspects of the project. As an example, this may be the contact person from the applicant institution's office of sponsored projects. Use the drop down menus where they are provided.

- Item 6

  Employer Identification (EIN) or (TIN). Enter either the Employer Identification Number (EIN) or Tax Identification Number (TIN) as assigned by the Internal Revenue Service. If the applicant organization is not located in the United States, enter 44-4444444.

- Item 7

  Type of Applicant. Use the drop down menu to select the type of applicant. If Other, please specify.

  Small Business Organization Type. If "Small Business" is selected as Type of Applicant, indicate whether or not the applicant is a "Women Owned" small business – a small business that is at least 51% owned by a woman or women, who also control and operate it. Also indicate whether or not the applicant is a "Socially and Economically Disadvantaged" small business, as determined by the U.S. Small Business Administration pursuant to section 8(a) of the Small Business Act U.S.C. 637(a).

- Item 8

Type of Application. Indicate whether the application is a “New” application or a “Resubmission” of an application that was submitted under a previous Institute competition and received reviewer comments. Only the "New" and "Resubmission" options apply to Institute competitions. Do not select any option other than "New" or "Resubmission."

Submission to Other Agencies. Indicate whether or not this application is being submitted to another agency or agencies. If yes, indicate the name of the agency or agencies.

- Item 9

  Name of Federal Agency. Do not complete this item. The name of the federal agency to which the application is being submitted will already be entered on the form.

- Item 10

  Catalog of Federal Domestic Assistance Number. Do not complete this item. The CFDA number of the program competition to which the application is being submitted will already be entered on the form. The CFDA number can be found in the Federal Register Notice and on the face page of the Request for Applications.

- Item 11

  Descriptive Title of Applicant’s Project. **Enter a distinctive, descriptive title for the project**. The maximum number of characters allowed in this item field is 200.

- Item 12

  Proposed Project Start Date and Ending Date. Enter the proposed start date of the project and the proposed end date of the project. The start date must not be earlier than July 1, 2017, which is the Earliest Anticipated Start Date listed in this Request for Applications, and must not be later than September 1, 2017. The end date is restricted based on the duration maximums for the research goal selected (see Part III: Goal Descriptions and Requirements).

- Item 13

  Congressional District of Applicant. For both the applicant and the project, enter the Congressional District in this format: 2-character State Abbreviation and 3-character District Number (e.g., CA-005 for California's 5th district, CA-012 for California's 12th district). Grants.gov provides help for finding this information http://www.grants.gov/web/grants/applicants/applicant-faqs.html under “How can I find my congressional district code?” If the program/project is outside the U.S., enter 00-000.

- Item 14

  Project Director/Principal Investigator Contact Information. Enter all of the information requested for the Project Director/Principal Investigator, including position/title, name, address (including county), organizational affiliation (e.g., organization, department, division, etc.), telephone and fax numbers, and email address. Use the drop down menus where they are provided.

- Item 15

  Estimated Project Funding

- Total Federal Funds Requested. Enter the total Federal funds requested for the entire project period. The total Federal funds requested must not exceed the cost maximums for the research goal selected (see Part III: Goal Descriptions and Requirements).

- Total Non-Federal Funds. Enter the total Non-Federal funds requested for the entire project period.

- Total Federal & Non-Federal Funds. Enter the total estimated funds for the entire project period, including both Federal and Non-Federal funds.

- Estimated Program Income. Identify any program income estimated for the project period, if applicable.

- Item 16

  Is Application Subject to Review by State Executive Order 12372 Process? The Institute is not soliciting applications that are subject to review by Executive Order 12372; therefore, check the box "Program is not covered by E.O. 12372" to indicate "No" for this item.

- Item 17

  This is the Authorized Organization Representative's electronic signature.

  By providing the electronic signature, the Authorized Organization Representative certifies the following:

  - To the statements contained in the list of certifications
  - That the statements are true, complete and accurate to the best of his/her knowledge.

  By providing the electronic signature, the Authorized Organization Representative also provides the required assurances, agrees to comply with any resulting terms if an award is accepted, and acknowledges that any false, fictitious, or fraudulent statements or claims may subject him/her to criminal, civil, or administrative penalties.

  Note: The certifications and assurances referred to here are described in Part VI.E.7: Other Forms Included in the Application Package).

- Item 18

  SF LLL or other Explanatory Documentation. Do not add the SF LLL here. A copy of the SF LLL is provided as an optional document within the application package. See Part VI.E.7: Other Forms Included in the Application Package to determine applicability. If it is applicable to the grant submission, choose the SF LLL from the optional document menu, complete it, and save the completed SF LLL form as part of the application package.

- Item 19

  Authorized Representative. The Authorized Representative is the official who has the authority both to legally commit the applicant to (1) accept federal funding and (2) execute the proposed project. Enter all information requested for the Authorized Representative, including name, title, organizational affiliation (e.g., organization, department, division, etc.), address, telephone and

fax numbers, and email address of the Authorized Representative. Use the drop down menus where they are provided.

Signature of Authorized Representative. Leave this item blank as it is automatically completed when the application is submitted through Grants.gov.

Date Signed. Leave this item blank as the date is automatically generated when the application is submitted through Grants.gov.

- Item 20

  Pre-application. Do not complete this item as the Institute does not require pre-applications for its grant competitions.

- Item 21

  Cover Letter. Do not complete this item as the Institute does not require cover letters for its grant competitions.

2. Research & Related Senior/Key Person Profile (Expanded)

This form asks you to: (1) identify the Project Director/Principal Investigator and other senior and/or key persons involved in the project; (2) specify the role key staff will serve; and (3) provide contact information for each senior/key person identified. The form also requests information about the highest academic or professional degree or other credentials earned and the degree year. This form includes a "Credential/Agency Log In" box that is optional.

This form also provides the means for attaching the Biographical Sketches of senior/key personnel as PDF files. This form will allow for the attachment of a total of 40 biographical sketches: one for the Project Director/Principal Investigator and up to 39 additional sketches for senior/key staff. See Part IV.D.10: Biographical Sketches of Senior/Key Personnel for information about page limitations, format requirements, and content to be included in the biographical sketches. The persons listed on this form should be the same persons listed in the Personnel section of the Project Narrative. If consultants are listed there, you may include a biographical sketch for each one listed. As a reminder, the Institute strongly encourages the use of SciENcv to create IES Biosketches for grant applications to the Institute.

3. Project/Performance Site Location(s)

This form asks you to identify the primary site where project work will be performed. You must complete the information for the primary site. If a portion of the project will be performed at any other site(s), the form also asks you to identify and provide information about the additional site(s). As an example, a research proposal to an Institute competition may include the applicant institution as the primary site and one or more schools where data collection will take place as additional sites. The form permits the identification of eight project/performance site locations in total. This form requires the applicant to identify the Congressional District for each site. See above, Application for Federal Assistance SF 424 (R&R), Item 13 for information about Congressional Districts. DUNS number information is optional on this form.

4. Research & Related Other Project Information

This form asks you to provide information about any research that will be conducted involving Human Subjects, including: (1) whether human subjects are involved; (2) if human subjects are involved, whether or not the project is exempt from the human subjects regulations; (3) if the project is exempt from the regulations, an indication of the exemption number(s); and, (4) if the project is not exempt

from the regulations, whether an Institutional Review Board (IRB) review is pending; and if IRB approval has been given, the date on which the project was approved and the Human Subject Assurance number. This form also asks you: (1) whether there is proprietary information included in the application; (2) whether the project has an actual or potential impact on the environment; (3) whether the research site is designated or eligible to be designated as an historic place; and, (4) if the project involves activities outside the U.S., to identify the countries involved.

This form also provides the means for attaching a number of PDF files (see Part V.D: PDF Attachments for information about page limitations, format requirements, and content) including the following:

- Project Summary/Abstract,
- Project Narrative and Appendices,
- Bibliography and References Cited, and
- Research on Human Subjects Narrative.

- Item 1

  Are Human Subjects Involved? If activities involving human subjects are planned at any time during the proposed project at any performance site or collaborating institution, you must check "Yes." (You must check "Yes" even if the proposed project is exempt from Regulations for the Protection of Human Subjects.) If there are no activities involving human subjects planned at any time during the proposed project at any performance site or collaborating institution, you may check "No" and skip to Item 2.

  Is the Project Exempt from Federal Regulations? If all human subject activities are exempt from Human Subjects regulations, then you may check "Yes." You are required to answer this question if you answered "yes" to the first question "Are Human Subjects Involved?"

  If you answer "yes" to the question "Is the Project Exempt from Federal Regulations?" you are required to check the appropriate exemption number box or boxes corresponding to one or more of the exemption categories. The six categories of research that qualify for exemption from coverage by the regulations are described on the U.S. Department of Education's website http://www2.ed.gov/policy/fund/guid/humansub/overview.html. Provide an Exempt Research on Human Subjects Narrative at Item 12 of this form (see Part V.D.9. Research on Human Subjects Narrative).

  If you answer "no" to the question "Is the Project Exempt from Federal Regulations?" you will be prompted to answer questions about the Institutional Review Board (IRB) review.

  If no, is the IRB review pending? Answer either "Yes" or "No."

  If you answer "yes" because the review is pending, then leave the IRB approval date blank. If you answer "no" because the review is not pending, then you are required to enter the latest IRB approval date, if available. Therefore, you should select "No" only if a date is available for IRB approval.

  Note: IRB Approval may not be pending because you have not begun the IRB process. In this case, an IRB Approval Date will not be available. However, a date must be entered in this field if "No" is selected or the application will be rejected with errors by Grants.gov. Therefore, you

should check “Yes” to the question “Is the IRB review pending?” if an IRB Approval date is not available.

If you answer “no” to the question “Is the Project Exempt from Federal Regulations?” provide a Non-exempt Research on Human Subjects Narrative at Item 12 of this form (see Part V.D.9. Research on Human Subjects Narrative).

Human Subject Assurance Number: Leave this item blank.

- Item 2

  Are Vertebrate Animals used? Check whether or not vertebrate animals will be used in this project.

- Item 3

  Is proprietary/privileged information included in the application? Patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in applications only when such information is necessary to convey an understanding of the proposed project. If the application includes such information, check “Yes” and clearly mark each line or paragraph on the pages containing the proprietary/privileged information with a legend similar to, "The following contains proprietary/privileged information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation.”

- Item 4

  Does this project have an actual or potential impact on the environment? Check whether or not this project will have an actual or potential impact on the environment.

- Item 5

  Is the research site designated or eligible to be designated as a historic place? Check whether or not the research site is designated or eligible to be designated as a historic place. Explain if necessary.

- Item 6

  Does the project involve activities outside of the United States or partnerships with international collaborators? Check “Yes” or “No.” If the answer is “Yes,” then you need to identify the countries with which international cooperative activities are involved. An explanation of these international activities or partnerships is optional.

- Item 7

  Project Summary/Abstract. Attach the Project Summary/Abstract as a PDF file here. See Part V.D. PDF Attachments for information about content, formatting, and page limitations for this PDF file.

- Item 8

  Project Narrative. Create a single PDF file that contains the Project Narrative as well as, when applicable, Appendix A (required for resubmissions), Appendix B (optional), Appendix C

(optional), Appendix D (optional), and Appendix E (required for projects under the Efficacy/Replication and the Effectiveness goals). Attach that single PDF file here. See Part V.D. PDF Attachments for information about content, formatting, and page limitations for this PDF file.

- Item 9

  Bibliography and References Cited. Attach the Bibliography and References Cited as a PDF file here. See Part V.D. PDF Attachments for information about content, formatting, and page limitations for this PDF file.

- Item 10

  Facilities and Other Resources. The Institute does not want an attachment here. Explanatory information about facilities and other resources must be included in the Resources Section of the 25-page Project Narrative for the application and may also be included in the Narrative Budget Justification. In the project narrative of competitive proposals, applicants describe having access to institutional resources that adequately support research activities and access to schools in which to conduct the research. Strong applications document the availability and cooperation of the schools or other education delivery settings that will be required to carry out the research proposed in the application via a letter of agreement from the education organization. Include letters of agreement in Appendix D.

- Item 11

  Equipment. The Institute does not want an attachment here. Explanatory information about equipment may be included in the Narrative Budget Justification.

- Item 12

  Other Attachments. Attach a Research on Human Subjects Narrative as a PDF file here. You must attach either an Exempt Research on Human Subjects Narrative or a Non-Exempt Research on Human Subjects Narrative. See Part V.D. PDF Attachments for information about content, formatting, and page limitations for this PDF file.

  If you checked "Yes" to Item 1 of this form "Are Human Subjects Involved?" and designated an exemption number(s), then you must provide an "Exempt Research" narrative. If some or all of the planned research activities are covered by (not exempt from) the Human Subjects Regulations, then you must provide a "Nonexempt Research" narrative.

5. Research & Related Budget (Total Federal+Non-Federal)-Sections A & B; C, D, & E; F-K

This form asks you to provide detailed budget information for each year of support requested for the applicant institution (i.e., the Project Budget). The form also asks you to indicate any Non-Federal Funds supporting the project. You should provide this budget information for each project year using all sections of the R&R Budget form. Note that the budget form has multiple sections for each budget year: A & B; C, D, & E; and F-K.

- Sections A & B ask for information about Senior/Key Persons and Other Personnel
- Sections C, D & E ask for information about Equipment, Travel, and Participant/Trainee Costs
- Sections F-K ask for information about Other Direct Costs and Indirect Costs

You must complete each of these sections for as many budget periods (i.e., project years) as you are requesting funds.

Note: The narrative budget justification for each of the project budget years must be attached at Section K of the first budget period; otherwise you will not be able to enter budget information for subsequent project years.

Note: Budget information for a subaward(s) on the project must be entered using a separate form, the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form, described in Part VI.E.6. This is the only form that can be used to extract the proper file format to complete subaward budget information. **The application will be rejected with errors by Grants.gov if subaward budget information is included using any other form or file format.**

Enter the Federal Funds requested for all budget line items as instructed below. If any Non-Federal funds will be contributed to the project, enter the amount of those funds for the relevant budget categories in the spaces provided. Review the cost maximums for the research goal selected (see Part III: Research Goals) to ensure the application will be deemed responsive and sent forward for peer review.

All fields asking for total funds in this form will auto calculate.

- Organizational DUNS.

  If you completed the SF 424 R&R Application for Federal Assistance form first, the DUNS number will be pre-populated here. Otherwise, the organizational DUNS number must be entered here. See Part VI.E.1 for information on the DUNS number.

- Budget Type.

  Check the box labeled "Project" to indicate that this is the budget requested for the primary applicant organization. If the project involves a subaward(s), you must access the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form to complete a subaward budget (see Part VI.E.6 for instructions regarding budgets for a subaward).

- Budget Period Information.

  Enter the start date and the end date for each budget period. **Enter only the number of budget periods allowed for the project as determined by the Award Duration Maximums for the relevant research goal selected for your project** (see Part III: Goal Descriptions and Requirements). Note: If you activate an extra budget period and leave it blank this may cause your application to be rejected with errors by Grants.gov.

- Budget Sections A & B

  A. Senior/Key Person. The Project Director/Principal Investigator information will be pre-populated here from the SF 424 R&R Application for Federal Assistance form if it was completed first. Then, enter all of the information requested for each of the remaining senior/key personnel, including the project role of each and the number of months each will devote to the project, i.e., calendar or academic + summer. You may enter the annual compensation (base salary – dollars) paid by the employer for each senior/key person; however, you may choose to leave this field blank. Regardless of the number of months devoted to the project, indicate only the amount of salary being requested for each budget period for each senior/key person. Enter applicable fringe

benefits, if any, for each senior/key person. Enter the Federal dollars and, if applicable, the Non-Federal dollars.

B. Other Personnel. Enter all of the information requested for each project role listed – for example Postdoctoral Associates, Graduate Students, Undergraduate Students, Secretary/Clerical, etc. – including, for each project role, the number of personnel proposed and the number of months devoted to the project (calendar or academic + summer). Regardless of the number of months devoted to the project, indicate only the amount of salary/wages being requested for each project role. Enter applicable fringe benefits, if any, for each project role category. Enter the Federal dollars and, if applicable, the Non-Federal dollars.

Total Salary, Wages, and Fringe Benefits (A + B). This total will auto calculate.

- Budget Sections C, D & E

C. Equipment Description. Enter all of the information requested for Equipment. Equipment is defined as an item of property that has an acquisition cost of $5,000 or more (unless the applicant organization has established lower levels) and an expected service life of more than 1 year. List each item of equipment separately and justify each in the narrative budget justification. Allowable items ordinarily will be limited to research equipment and apparatus not already available for the conduct of the work. General-purpose equipment, such as a personal computer, is not eligible for support unless primarily or exclusively used in the actual conduct of scientific research. Enter the Federal dollars and, if applicable, the Non-Federal dollars.

Total C. Equipment. This total will auto calculate.

D. Travel. Enter all of the information requested for Travel.

Enter the total funds requested for domestic travel. In the narrative budget justification, include the purpose, destination, dates of travel (if known), applicable per diem rates, and number of individuals for each trip. If the dates of travel are not known, specify the estimated length of the trip (e.g., 3 days). Enter the Federal dollars and, if applicable, the Non-Federal dollars.

Enter the total funds requested for foreign travel. In the narrative budget justification, include the purpose, destination, dates of travel (if known), applicable per diem rates, and number of individuals for each trip. If the dates of travel are not known, specify the estimated length of the trip (e.g., 3 days). Enter the Federal dollars and, if applicable, the Non-Federal dollars.

Total D. Travel Costs. This total will auto calculate.

E. Participant/Trainee Support Costs. Do not enter information here; this category is not used for project budgets for this competition.

Number of Participants/Trainees. Do not enter information here; this category is not used for project budgets for this competition.

Total E. Participants/Trainee Support Costs. Do not enter information here; this category is not used for project budgets for this competition.

- Budget Sections F-K

F. Other Direct Costs. Enter all of the information requested under the various cost categories. Enter the Federal dollars and, if applicable, the Non-Federal dollars.

Materials and Supplies. Enter the total funds requested for materials and supplies. In the narrative budget justification, indicate the general categories of supplies, including an amount for each category. Categories less than $1,000 are not required to be itemized.

Publication Costs. Enter the total publication funds requested. The proposed budget may request funds for the costs of documenting, preparing, publishing or otherwise making available to others the findings and products of the work conducted under the award. In the narrative budget justification, include supporting information.

Consultant Services. Enter the total costs for all consultant services. In the narrative budget justification, identify each consultant, the services he/she will perform, total number of days, travel costs, and total estimated costs. Note: Travel costs for consultants can be included here or in Section D. Travel.

ADP/Computer Services. Enter the total funds requested for ADP/computer services. The cost of computer services, including computer-based retrieval of scientific, technical, and education information may be requested. In the narrative budget justification, include the established computer service rates at the proposing organization if applicable.

Subaward/Consortium/Contractual Costs. Enter the total funds requested for: (1) all subaward/consortium organization(s) proposed for the project and (2) any other contractual costs proposed for the project. Use the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form to provide detailed subaward information (see Part VI.E.6).

Equipment or Facility Rental/User Fees. Enter the total funds requested for equipment or facility rental/user fees. In the narrative budget justification, identify each rental user fee and justify.

Alterations and Renovations. Leave this field blank. The Institute does not provide funds for construction costs.

Other. Describe any other direct costs in the space provided and enter the total funds requested for this "Other" category of direct costs. Use the narrative budget justification to further itemize and justify.

Total F. Other Direct Costs. This total will auto calculate.

- G. Direct Costs

  Total Direct Costs (A thru F). This total will auto calculate.

- H. Indirect Costs

  Enter all of the information requested for Indirect Costs. Principal Investigators should note that if they are requesting reimbursement for indirect costs, this information is to be completed by their Business Office.

  Indirect Cost Type. Indicate the type of base (e.g., Salary & Wages, Modified Total Direct Costs, Other [explain]). In addition, indicate if the Indirect Cost type is off-site. If more than one rate/base is involved, use separate lines for each. When calculating your expenses for research

conducted in field settings, you should apply your institution's negotiated off-campus indirect cost rate, as directed by the terms of your institution's negotiated agreement with the federal government.

Institutions, both primary grantees and subawardees, not located in the territorial U.S. cannot charge indirect costs.

If you do not have a current indirect rate(s) approved by a Federal agency, indicate "None--will negotiate". **If your institution does not have a federally negotiated indirect cost rate,** you should consult a member of the Indirect Cost Group (ICG) in the U.S. Department of Education's Office of the Chief Financial Officer http://www2.ed.gov/about/offices/list/ocfo/fipao/icgreps.html to help you estimate the indirect cost rate to put in your application.

Indirect Cost Rate (percent). Indicate the most recent Indirect Cost rate(s) (also known as Facilities & Administrative Costs [F&A]) established with the cognizant Federal office, or in the case of for-profit organizations, the rate(s) established with the appropriate agency.

If your institution has a cognizant/oversight agency and your application is selected for an award, you must submit the indirect cost rate proposal to that cognizant/oversight agency office for approval.

Indirect Cost Base ($). Enter the amount of the base (dollars) for each indirect cost type. Depending on the grant program to which you are applying and/or the applicant institution's approved Indirect Cost Rate Agreement, some direct cost budget categories in the grant application budget may not be included in the base and multiplied by the indirect cost rate. Use the narrative budget justification to explain which costs are included and which costs are excluded from the base to which the indirect cost rate is applied. If your grant application is selected for an award, the Institute will request a copy of the applicant institution's approved Indirect Cost Rate Agreement.

Indirect Cost Funds Requested. Enter the funds requested (Federal dollars and, if applicable, the Non-Federal dollars) for each indirect cost type.

Total H. Indirect Costs. This total will auto calculate.

Cognizant Agency. Enter the name of the Federal agency responsible for approving the indirect cost rate(s) for the applicant. Enter the name and telephone number of the individual responsible for negotiating the indirect cost rate. If a Cognizant Agency is not known, enter "None."

- Total Direct and Indirect Costs

  Total Direct and Indirect Costs (G + H). This total will auto calculate.

- J. Fee.

  Do not enter a dollar amount here as you are not allowed to charge a fee on a grant or cooperative agreement.

- K. Budget Justification

Attach the Narrative Budget Justification as a PDF file at Section K of the first budget period (see Part V.D.11 for information about content, formatting, and page limitations for this PDF file). Note that if the justification is not attached at Section K of the first budget period, you will not be able to access the form for the second budget period and all subsequent budget periods. The single narrative must provide a budget justification for each year of the entire project.

- Cumulative Budget. This section will auto calculate all cost categories for all budget periods included.

Final Note: The overall grant budget cannot exceed the maximum grant award for the Research Goal being applied under as listed in the table below. Applications with budgets greater than the maximum grant award will not be forwarded for review.

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary data analysis only: 2 years	$600,000
	Primary data collection and analysis: 4 years	$1,400,000
Development & Innovation	4 years	$1,400,000
Efficacy & Replication	Efficacy & Replication: 4 years	$3,300,000
	Follow-up: 3 years	$1,100,000
	Retrospective: 3 years	$700,000
Effectiveness	Effectiveness: 5 years	$3,800,000
	Follow-up: 3 years	$1,400,000
Measurement	4 years	$1,400,000

6. R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form

This form provides the means to both extract and attach the Research & Related Budget (Total Fed + Non-Fed) form that is to be used by an institution that will hold a subaward on the grant. Please note that separate budgets are required only for subawardee/consortium organizations that perform a substantive portion of the project. As with the Primary Budget, the extracted Research & Related Budget (Total Fed + Non-Fed) form asks you to provide detailed budget information for each year of support requested for a subaward/consortium member with substantive involvement in the project. The budget form also asks for information regarding Non-Federal Funds supporting the project at the subaward/consortium member level. You should provide this budget information for each project year using all sections of the R&R Budget form. Note that the budget form has multiple sections for each budget year: A & B; C, D, & E; and F-K.

- Sections A & B ask for information about Senior/Key Persons and Other Personnel.
- Sections C, D & E ask for information about Equipment, Travel, and Participant/Trainee Costs.
- Sections F-K ask for information about Other Direct Costs and Indirect Costs.

"Subaward/Consortium" must be selected as the Budget Type, and all sections of the budget form for each project year must be completed in accordance with the R&R (Federal/Non-Federal) Budget instructions provided above in Part VI.E.5. Note that subaward organizations are also required to provide their DUNS or DUNS+4 number.

You may extract and attach up to 10 subaward budget forms. When you use the button "Click here to extract the R&R Budget (Fed/Non-Fed) Attachment," a Research & Related Budget (Total Fed + Non-Fed) form will open. Each institution that will hold a subaward to perform a substantive portion of the project must complete one of these forms and save it as a PDF file with the name of the subawardee organization. Once each subawardee institution has completed the form, you must attach these completed subaward budget form files to the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form. Each subaward budget form file attached to this form must have a unique name.

Note: This R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form must be used to attach only one or more Research & Related Budget (Total Fed + Non-Fed) form(s) that have been extracted from this form. Note the form's instruction: "Click here to extract the R&R Budget (Fed/Non-Fed) Attachment." **If you attach a file format to this form that was not extracted from this attachment form your application will be rejected with errors by Grants.gov.**

7. Other Forms Included in the Application Package

You are required to submit the first two forms identified here. You are not required to submit the third form, Disclosure of Lobbying Activities – Standard Form LLL, unless it is applicable.

- SF 424B-Assurances-Non-Construction Programs.
- Grants.gov Lobbying form (formerly ED 80-0013 form).
- Disclosure of Lobbying Activities – Standard Form LLL (if applicable).

F. SUMMARY OF REQUIRED APPLICATION CONTENT

R&R Form	Required	Instructions Provided	Additional Information
Application for Federal Assistance SF 424 (R&R)	☑	Part VI.E.1	Form provided in Grants.gov application package
Senior/Key Person Profile (Expanded)	☑	Part VI.E.2	Form provided in Grants.gov application package
Project/Performance Site Location(s)	☑	Part VI.E.3	Form provided in Grants.gov application package
Other Project Information	☑	Part VI.E.4	Form provided in Grants.gov application package
Budget (Total Federal + Non-Federal): Sections A & B Sections C, D, & E Sections F - K	☑	Part VI.E.5	Form provided in Grants.gov application package
R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form	--	Part VI.E.6	Form provided in Grants.gov application package. Use this form to *extract and attach* a subaward budget(s).
SF 424B Assurances – Non-Construction Programs Grants.gov Lobbying form – Disclosure of Lobby Activities – Standard Form LLL (if applicable)	☑ ☑ --	Part VI.E.7	Forms provided in Grants.gov application package
Project Summary/Abstract	☑	Part V.D.1	Add as an attachment (PDF file) using Item 7 of the "Other Project Information" form.
Project Narrative and Appendices • Narrative • Appendix A • Appendix B • Appendix C • Appendix D • Appendix E	 ☑ -- -- -- -- --	Part V.D.2-7	The Project Narrative, and if applicable Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E must ALL be included together in one PDF file and attached at Item 8 of the "Other Project Information" form.
Bibliography and References Cited	☑	Part V.D.8	Add as an attachment (PDF file) using Item 9 of the "Other Project Information" form.
Research on Human Subjects Narrative, if human subjects are involved	☑	Part V.D.9	Add as an attachment (PDF file) using Item 12 of the "Other Project Information" form.
Biographical Sketches of Senior/Key Personnel Including	☑	Part V.D.10	Add each as a separate attachment (PDF file) using the

Current and Pending Support			"Senior/Key Person Profile (Expanded)" form.
Narrative Budget Justification	☑	Part V.D.11	Add as an attachment (PDF file) using *Section K – Budget Period 1* of the "Budget (Total Federal + Non-Federal)" form.

G. APPLICATION CHECKLIST

Have each of the following forms been completed?	
	SF 424 Application for Federal Assistance
	For item 4a, is the PR/Award number entered if this is a Resubmission following the instructions in Part VI.E.1?
	For item 4b, are the correct topic and goal codes included following the instructions in Part VI.E.1?
	For item 8, is the Type of Application appropriately marked as either "New" or "Resubmission" following the instructions in Part VI.E.1?
	Senior/Key Person Profile (Expanded)
	Project/Performance Site Location(s)
	Other Project Information
	Budget (Total Federal + Non-Federal): Sections A & B; Sections C, D, & E; Sections F - K
	R&R Subaward Budget (Federal/Non-Federal) Attachment(s) form (if applicable)
	SF 424B Assurances – Non-Construction Programs
	Grants.gov Lobbying form (formerly ED 80-0013 form)
	Disclosure of Lobby Activities – Standard Form LLL (if applicable)
Have each of the following items been attached as PDF files in the correct place?	
	Project Summary/Abstract, using Item 7 of the "Other Project Information" form
	Project Narrative, and where applicable, Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E as a single file using Item 8 of the "Other Project Information" form
	Bibliography and References Cited, using Item 9 of the "Other Project Information" form
	Research on Human Subjects Narrative, either the Exempt Research Narrative or the Non-exempt Research Narrative, using Item 12 of the "Other Project Information" form
	Biographical Sketches including Current and Pending Support of Senior/Key Personnel, using "Attach Biographical Sketch" of the "Senior/Key Person Profile (Expanded)" form
	Narrative Budget Justification, using Section K – Budget Period 1 of the "Budget (Total Federal + Non-Federal)" form
	Budget (Total Federal + Non-Federal): Sections A & B; Sections C, D, & E; Sections F – K for the

	Subaward(s), using the “R&R Subaward Budget (Federal/Non-Federal) Attachment(s)” form, as appropriate, that conforms to the Award Duration and Cost Maximums for the Research Goal selected
Have the following actions been completed?	
	The correct PDF files are attached to the proper forms in the Grants.gov application package.
	The "Check Package for Errors" button at the top of the grant application package has been used to identify errors or missing required information that prevents an application from being processed.
	The “Track My Application” link has been used to verify that the upload was fully completed and that the application was processed and validated successfully by Grants.gov before 4:30:00 p.m., Washington, DC time on the deadline date.

H. PROGRAM OFFICER CONTACT INFORMATION

Please contact the Institute's program officers with any questions you may have about the best topic and goal for your application. Program officers function as knowledgeable colleagues who can provide substantive feedback on your research idea, including reading a draft of your project narrative. Program officers can also help you with any questions you may have about the content and preparation of PDF file attachments. However, any questions you have about individual forms within the application package and electronic submission of your application through Grants.gov should be directed first to the Grants.gov Contact Center at support@grants.gov, http://www.grants.gov/web/grants/about/contact-us.html, or call 1-800-518-4726.

Autism Spectrum Disorders
Kimberley (Kim) Sprague, Ed.M.
Email: Kimberley.Sprague@ed.gov
Telephone: (202) 245-8464

Cognition and Student Learning in Special Education
Katherine (Katie) Taylor, Ph.D.
Email: Katherine.Taylor@ed.gov
Telephone: (202) 245-6716

Early Intervention and Early Learning in Special Education
Amy Sussman, Ph.D.
Email: Amy.Sussman@ed.gov
Telephone: (202) 245-7424

Families of Children with Disabilities
Jacquelyn Buckley, Ph.D.
Email: Jacquelyn.Buckley@ed.gov
Telephone: (202) 245-6607

Mathematics and Science Education
Sarah Brasiel, Ph.D.
Email: Sarah.Brasiel@ed.gov
Telephone: (202) 245-6734

Professional Development for Teachers and Related Services Providers
Katherine (Katie) Taylor, Ph.D.
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Telephone: (202) 245-6716

Reading, Writing, and Language Development
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Email: Sarah.Brasiel@ed.gov
Telephone: (202) 245-6734

Social and Behavioral Outcomes to Support Learning
Jacquelyn Buckley, Ph.D.
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Telephone: (202) 245-6607

Special Education Policy, Finance, and Systems

Katherine (Katie) Taylor, Ph.D.
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Telephone: (202) 245-6716

Technology for Special Education

Sarah Brasiel, Ph.D.
Email: Sarah.Brasiel@ed.gov
Telephone: (202) 245-6734

Transition Outcomes for Secondary Students with Disabilities

Kimberley (Kim) Sprague, Ed.M.
Email: Kimberley.Sprague@ed.gov
Telephone: (202) 245-8464

GLOSSARY

Administrative data: Information that is routinely collected about students, teachers, schools, and districts by state and local education agencies to assess progress, monitor programs, or adhere to reporting requirements. Examples of data include student enrollment, class schedules, grades, and assessments; teacher assignments and schedules; electronic communications with students, parents, and teachers; reports completed for EDFacts, Civil Rights Data Collection, and other federal initiatives; and fiscal records. Administrative data also include non-routine special data collections, for example, on a specific agency program, project or policy or on a specific type of student, teacher, school, or district.

Assessment: "Any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test" (AERA, 2014).

Assessment framework: Includes the definition of the construct(s); theoretical model on which the assessment is based; and the rationale for validity evidence to support its use for the intended purpose and population.

Authentic education setting: Your proposed research must be relevant to education in the United States and meet the Setting Requirements for the Topic that you select. Setting refers to the environment where education is being delivered not the physical location of the researcher. Topics require that research is conducted in authentic education settings or on data collected from authentic education (although some goals also allow for research conducted in laboratory settings). Authentic education setting varies by education level as set out below.

- Authentic Education Settings for Infants and Toddlers are defined as:
    - Homes
    - Child care
    - Natural settings for early intervention services

- Authentic Preschool Settings are defined as:
    - Homes
    - Child care
    - Preschool programs
    - Natural settings for early childhood special education services

- Authentic K-12 Education Settings are defined as:
    - Schools and alternative school settings (e.g., alternative schools or juvenile justice settings)
    - Homes, provided that the intervention is school-based (i.e., programs must be coordinated through the school or district)
    - School systems (e.g., local education agencies or state education agencies)
    - Settings that deliver supplemental education services (as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001) (http://www2.ed.gov/policy/elsec/leg/esea02/index.html)
    - Settings that deliver direct student services (under Section 1003A of the Elementary and Secondary Education Act of 1965)

(http://legcounsel.house.gov/Comps/Elementary%20And%20Secondary%20Education%20Act%20Of%201965.pdf)

- Career and Technical Education Centers affiliated with schools or school systems

Case: A case is a unit of intervention administration and data analysis. A case may be a single participant or a cluster of participants (e.g., a classroom, community).

Compliant: The part of the process of screening applications for acceptance for review that focuses on compliance with the application rules (e.g., page length and formatting requirements, completion of all parts of the application).

Concurrent validity: Evidence that indicates how accurately scores can predict criterion scores that are obtained at a similar time.

Consultant: A consultant is defined as an entity (i.e., individual or company) that provides professional advice or services for a fee. In general, consultants on IES grants do not share leadership responsibilities and are not involved in developing the research objectives, but rather provide advice or perform services that help accomplish research objectives.

Convergent validity: "Evidence based on the relationship between test scores and other measures of the same or related construct" (AERA, 2014).

Construct: "The concept or the characteristic that an assessment is designed to measure" (AERA, 2014).

Construct coverage: The degree to which an assessment measures the full range of skills, abilities, and/or content needed to adequately represent the target construct.

Development process: The method for developing the intervention to the point where it can be used by the intended end users.

Differential item functioning (DIF): "For a particular item in a test, a statistical indicator of the extent to which different groups of test takers who are at the same ability level have different frequencies of correct responses or, in some cases, different rates of choosing various item options" (AERA, 2014).

Discriminant validity evidence: "Evidence indicating whether two tests interpreted as measures of different constructs are sufficiently independent (uncorrelated) and that they do, in fact, measure two distinct constructs" (AERA, 2014).

Effectiveness study: The independent evaluation of a fully-developed education intervention with prior evidence of efficacy to determine whether it produces a beneficial impact on teacher and/or instructional personnel outcomes and student education outcomes relative to a counterfactual when implemented under routine practice in authentic education settings.

Effectiveness follow-up study: Studies that follow teachers and/or instructional personnel and students who took part in an Effectiveness study in subsequent years when they do not continue to receive the intervention in order to determine if the beneficial effects are maintained in succeeding time periods.

Efficacy study: A study that tests an intervention's beneficial impacts on teacher and/or instructional personnel outcomes and subsequent student education outcomes in comparison to an alternative practice, program, or policy.

Efficacy follow-up study: An efficacy study that tests the longer-term impacts of an intervention that has been shown to have beneficial impacts on teacher and/or instructional personnel outcomes and student education outcomes in a previous or ongoing efficacy study.

End user: The person intended to be responsible for the implementation of the intervention. Efficacy/Replication studies and Effectiveness studies should test an intervention implemented by the end user.

Feasibility: The extent to which the intervention can be implemented within the requirements and constraints of an authentic education setting.

Fidelity of implementation: The extent to which the intervention is being delivered as it was designed to be by end users in an authentic education setting.

Final manuscript: The author's final version of a manuscript accepted for publication that includes all modifications from the peer-review process.

Final research data: The recorded factual materials commonly accepted in the scientific community as necessary to document and support research findings. For most studies, an electronic file will constitute the final research data. This data set will include both raw data and derived variables, which will be fully described in accompanying documentation. Researchers are expected to take appropriate precautions to protect the privacy of human subjects. Note that final research data does not mean summary statistics or tables, but rather, the factual information on which summary statistics and tables are based. Final research data do not include preliminary analyses, drafts of scientific papers, plans for future research, peer-reviewed reports, or communications with colleagues.

Horizontal equating: Putting two or more assessments that are considered interchangeable on a common scale.

Ideal conditions: Conditions that provide a more controlled setting under which the intervention may be more likely to have beneficial impacts. For example, ideal conditions can include more implementation support than would be provided under routine practice in order to ensure adequate fidelity of implementation. Ideal conditions can also include a more homogeneous sample of students, teachers, schools, and/or districts than would be expected under routine practice in order to reduce other sources of variation that may contribute to outcomes.

Intervention: The wide range of professional development activities, technology tools, and practices, programs, and policies that are implemented at the teacher, school, district, or state level to improve teacher and/or instructional personnel outcomes and ultimately student education outcomes.

Laboratory research: An approach to research that allows for careful control of extraneous factors (e.g., by conducting research in a more controlled environment or with a more controlled situation than would be expected in authentic education settings). Laboratory research may be conducted in a laboratory or in an authentic education setting.

Malleable factors: Things that can be changed by the education system to improve teacher and/or other instructional personnel outcomes and subsequent student education outcomes.

Mediators: Factors through which the relationship between the intervention and relevant outcomes occurs (e.g., many interventions aimed at changing student education outcomes work through changing teacher behavior and/or student behavior).

Moderators: Factors that affect the strength or the direction of the relationship between the intervention and relevant outcomes (e.g., characteristics of the setting, context, teachers, and/or students).

Pilot study: A study designed to provide evidence of the promise of the fully-developed intervention for achieving its intended outcomes when it is implemented in an authentic education setting. A pilot study differs from studies conducted during the development process. The latter are designed to inform the iterative development process (e.g., by identifying areas of further development, testing individual components of the intervention); therefore, they are expected to lead to further development and revision of the intervention. The pilot study is designed to help determine whether a finalized version of the intervention performs as expected. Depending on the results, pilot studies may lead to further development of the intervention or they may lead to a rigorous evaluation of the intervention.

Predictive validity evidence: "Evidence indicating how accurately test data collected at one time can predict criterion scores that are obtained at a later time" (AERA, 2014).

Reliability: "The degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable and consistent for an individual test taker; the degree to which scores are free of random error of measurement for a given group" (AERA, 2014).

Replication study: An efficacy study to generate additional evidence that an intervention improves teacher and/or instructional personnel outcomes and student education outcomes by testing an intervention that has been shown to have beneficial impacts in a previous efficacy study.

Responsive: The part of the process of screening applications for acceptance for review that focuses on responsiveness to the Request for Applications. This screening includes making sure applications (1) are submitted to the correct competition and/or goal and (2) meet the basic requirements set out in the Request for Applications.

Retrospective study: An efficacy study that analyzes retrospective (historical) secondary data to test an intervention implemented in the past, and, that as a result, may not be able to meet the requirements for Efficacy/Replication projects regarding fidelity of implementation and comparison group practice.

Routine conditions: Conditions under which an intervention is implemented that reflect (1) the everyday practice occurring in homes, childcare, natural settings for infants and toddlers, classrooms, schools, and districts and (2) the heterogeneity of the target population.

Secondary data sets: Data sets that are often generated from nationally representative surveys or evaluations (e.g., http://nces.ed.gov/pubsearch/licenses.asp); administrative data from federal, state, or district agencies or from non-public organizations; and/or data from previous research studies.

Student education outcomes: The outcomes to be changed by the intervention. The intervention may be expected to directly affect these outcomes or indirectly affect them through intermediate teacher and/or instructional personnel outcomes. There are five types of student education outcomes for this

competition. The topic you choose will determine the types of student education outcomes you can study.

- Developmental outcomes: Outcomes pertaining to cognitive, communicative, linguistic, social, emotional, adaptive, functional or physical development.

- School readiness: Pre-reading, language, vocabulary, early science and mathematics knowledge, social and behavioral competencies that prepare young children for school.

- Student academic outcomes: The Institute supports research on a diverse set of student academic outcomes that fall under two categories. The first category includes academic outcomes that reflect learning and achievement in the core academic content areas (e.g., measures of understanding and achievement in reading, writing, math, and science). The second category includes academic outcomes that reflect students' successful progression through the education system (e.g., course and grade completion and retention in grade K through 12; high school graduation and dropout; postsecondary enrollment, progress, and completion).

- Social and behavioral competencies: Social skills, attitudes, and behaviors that may be important to students' academic and post-academic success.

- Functional outcomes: Skills or activities that are not considered academic or related to a child's academic achievement; "functional" is often used in the context of routine activities of everyday living and can include outcomes that improve educational results and transitions to employment, independent living, and postsecondary education for students with disabilities.

Teacher/instructional personnel outcomes: The outcomes to be changed by the intervention. The intervention may be expected to directly or indirectly affect these outcomes. These outcomes include teacher knowledge, (e.g., factual information, concepts, theories, and principles) and skills (e.g., behaviors that directly or indirectly facilitate student learning) that support student success in school and afterwards.

Theory of change: The underlying process through which key components of a specific intervention are expected to lead to the desired teacher and/or instructional personnel outcomes and subsequent student education outcomes. A theory of change should be specific enough to guide the design of the evaluation (e.g., selecting an appropriate sample, measures and comparison condition).

Usability: The extent to which the intended user understands or can learn how to use the intervention effectively and efficiently, is physically able to use the intervention, and is willing to use the intervention.

Validity: "The degree to which accumulated evidence and theory support a specific interpretation of test scores for a given use of a test. If multiple interpretations of a test score for different uses are intended, validity evidence for each interpretation is needed" (AERA, 2014).

Vertical equating: Putting two or more assessments that are considered to measure the same construct across different levels of development on a common scale.

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